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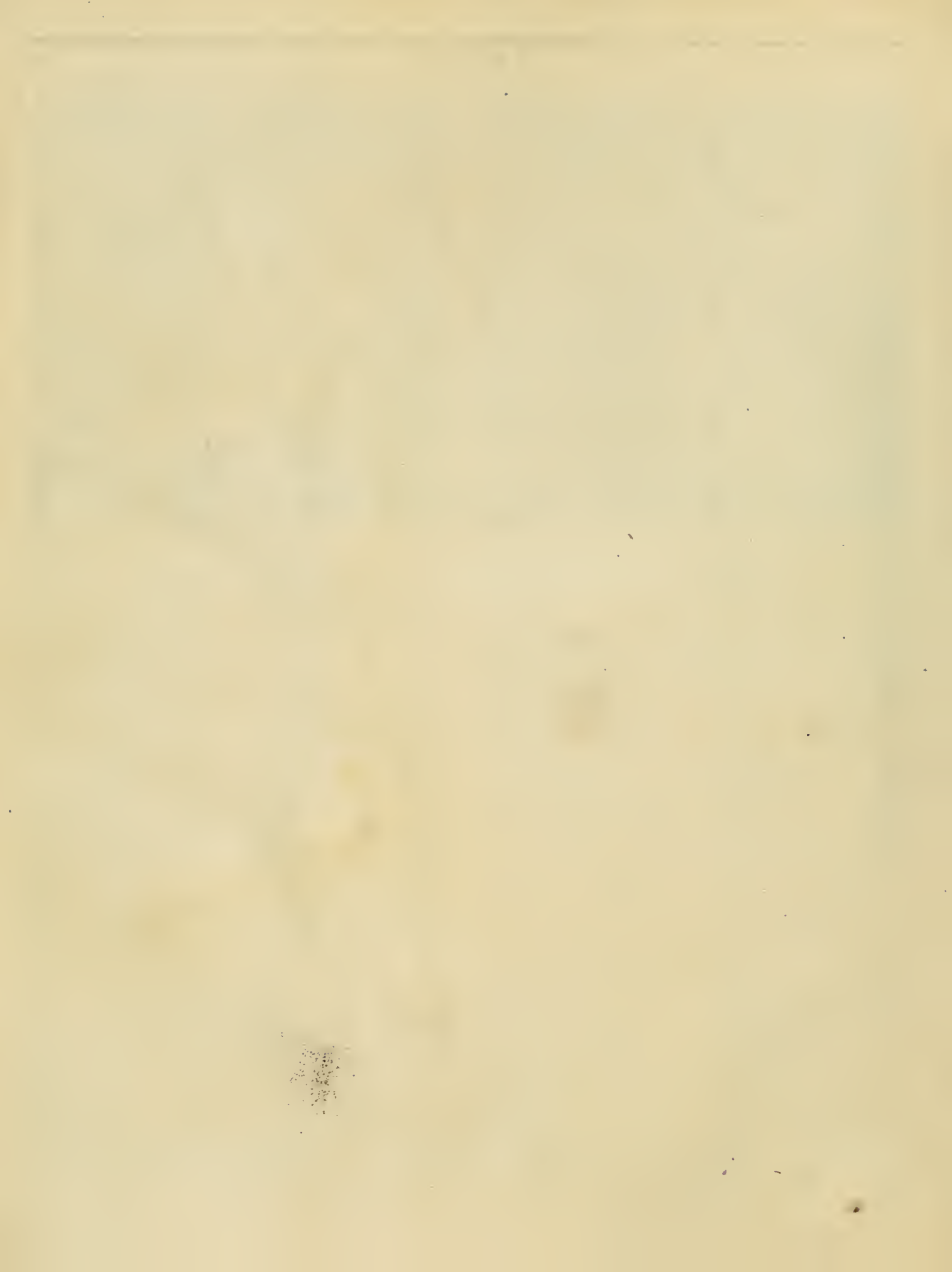
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The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
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The Railroad Movement in Ohio.

For ten years past, Ohio has had scarcely any railroad movement. This has been the case also with all the older states. After the shock to railroads given by the commercial revulsion of 1854, almost no new railroad enterprises were undertaken in the eastern or central states. There was, indeed, no need of any for several years, for such states as those of New England, New York, Pennsylvania, Ohio and Indiana, were, for their population and surface well supplied with railroad facilities. Railroad making flowed on to the new states of the North-west, and there railroad construction has been very active, and is still going on.

But, ten years makes a great difference in this country, and now Ohio, Indiana and Kentucky are entering upon a new career of railroading. Perhaps it will be interesting to trace out some of the new enterprises in Ohio:

1. The completion of the Marietta & Baltimore road can not be called a new enterprise; but there is doing, and is to be done, much that is important in regard to this road. The Marietta road was not, originally, finished into Cincinnati, but leased the Little Miami track, until within the last two or three years. Then it made a track to within eight miles of Cincinnati, and used the Hamilton and Dayton. Now, it is making this eight miles of its entrance into Cincinnati, which will soon be completed. Then there is the bridge over the Ohio at Parkersburg, which will be a very important work. When these improvements are made, the Marietta road will be completed,

so far as one track is concerned; but all our trunk lines of road will have to double track their roads, for freight can not be carried safely in such immense quantities as is carried without double tracks.

2. The Pan Handle road is, we hear, making an improvement in its line, which will make, comparatively, a new route into Cincinnati. Recently the Pennsylvania road, which is the same except in name, with the Pan Handle, bought the Wilmington & Zanesville road, from Zanesville to Cincinnati, and are now constructing a new link from Dresden (on the Pan Handle) to Zanesville, about 16 miles. This makes a route from Pittsburg to Cincinnati via Zanesville. We are told there is no considerable difference in the distance, so that the Pennsylvania road will have two routes through the interior of Ohio, from Pittsburg to Cincinnati, and both offering great local advantages. In the meanwhile, the Pennsylvania road has leased the Little Miami, so that now the Pennsylvania road has an uncontrolled trunk line from Philadelphia to Cincinnati. It is also building a bridge over the Ohio at Cincinnati, which will connect it with the Louisville Short Line, and thence to Memphis.

3. The Hocking Valley Road. This is a new road, put in operation in the last year, from Columbus to Nelsonville, in order to penetrate the best portion of the mineral region, and supply that part of this State, in the vicinity of Columbus, with coal, as well as commercial facilities for the Hocking Valley. This road passes through Lancaster and is 62 miles long to Nelsonville. It is intended, we presume, to go on to Athens, a few miles farther, and finally connect with the Baltimore road.

4. We now come to the road we have several times spoken of, viz: the Chesapeake & Ohio. The moment it was well understood that this road would be made, and thus constitute a new through line to the Atlantic, a profound interest sprung up in those parts of Ohio, which might be expected to connect with it. The first in the field was Columbus, and its neighbors. Meetings have been held at Columbus, Circleville, Chillicothe, etc., with the view to make a railroad from Columbus, through a portion of the Ohio Valley to Ironton, or to South Point, connecting with the Chesapeake & Ohio. For this purpose a charter has been taken out, and there seems to be little doubt that such a road will be made, as soon as the Virginia road actually reaches the Ohio. For the region of country through which it passes is very rich, and has the greatest possible interest in a road which shall go down from the Scioto Valley to the Southern Atlantic.

But, the most important connection with the Chesapeake & Ohio is that we have spoken of to Cincinnati. If we except the "Southern Road," Cincinnati has no railroad

interest greater than that she has in the Chesapeake & Ohio Railroad. The whole South-eastern Atlantic, even to Charleston, may be connected with that road, so as to concentrate the business of the Ohio Valley with the South-eastern Atlantic through Cincinnati. Make a direct trunk line from Cincinnati to Norfolk, and Chicago, Toledo, St. Louis—the whole north and west of us—must come to Cincinnati and pass over that line. Take a map and examine it and you will see, reader, that this is a fact.

Cincinnati has long needed, and has longed for a railroad line to the Carolinas and Virginia. If we can not go through Kentucky, the Chesapeake & Ohio offers a very good line, connecting at various points with roads leading through the Carolinas. We look to this new line as likely to be, in all respects, one of the greatest and most profitable railroad lines in this country. It will be made cheaper than any other trunk line, and therefore will afford its proprietors a large margin for net profits. It will be made where there is almost no competition, and to that part of the Southern Atlantic where there is most need of western products. Take all these things into view—cheapness of construction—little competition, and the need of western products, and we think we shall be fully justified in our proposition: that this road will do an immense business, and be very profitable.

And now the question is, how shall it be connected with Cincinnati? Here again there have been active movements. Meetings have been held along the whole line—a general meeting at Portsmouth, and numerous local meetings. There are four different routes proposed for the line from Cincinnati to South Point; or rather to a connection with the Chesapeake & Ohio road.

1. There is the river route. This would follow the river from the connection to Portsmouth; thence, on the bank of the river through the various villages to the Little Miami, and thence to Columbia and Cincinnati. This is entirely a river route, and is accompanied with some disadvantages in cost and distance.

2. The next route considered, is from Portsmouth on a direct line through Adams, Brown and Clermont counties to the city. This will go through the best part of those counties—is the shortest, and can, probably, furnish the most means.

3. The third route is a compound of these two. It proposes to go from Portsmouth on the river to Manchester, thence up on the last route, and this line is claimed to be the easiest and cheapest.

4. There is still another route, but wholly different, because it leaves out the river counties. This takes the old Hillsborough route, and goes through Piketon to Jackson, and to Kanawha. This is not, at all, the same scheme with the other; because it leaves out

of view the advantages, which have been desired for many years, of a railroad through the river counties. It is doubtful, also, whether the Baltimore road will permit any use of their line from Hillsborough to Cincinnati for another trunk line. In addition to this, we may add, that the parties interested in the Portsmouth road, have taken out a charter, with a capital of \$4,000,000, so that, in all probability, the road will be made on the direct line, through the counties of Adams, Brown and Clermont. In any event, it will be of most signal advantage to Cincinnati, and make a new era in her southern trade.

We had intended to mention and describe two or three other lines of road, proposed to be in Ohio; but this article is already long enough. We intend to take up the subject of Ohio and Indiana roads, and give a review of them. The result will show, that these new states of a new country have made more great works of civil and commercial interest, than have any other similar community since the world began.

The Cincinnati & Mackinaw and Stillwater Valley Railways.

A writer in a Northern paper, evidently well posted in railroad affairs, speaking of the movement in the Stillwater Valley for the purpose of constructing a railroad from Dayton to some point north-westwardly, not yet defined, says: "There is real merit in this scheme. It has the elements of success, and only requires an experienced executive head to place them in a practicable working order." And then he goes on to show, very clearly, we think, that the Cincinnati & Mackinaw road (of which we have written so much, and still persist in asserting must and will be made), will be very likely to reach Dayton by this Stillwater route.

A glance at the map will convince any one of the correctness of this position:

1st. Because it is shorter, by several miles—always a matter of great consideration.

2d. Because the Stillwater line must reach the Cincinnati & Mackinaw line before it is extended very far; and each being necessary to the other, they will be combined and managed as a unit, and thus an independent outlet will be afforded to this great Northern enterprise.

3d. Because cost of grading, directness, accessible material for the construction of such a work, and gradients, are all in favor of the Stillwater route.

These three items are of great moment, and would weigh heavily in favor of the new line if there were no other reasons. But if these be considered, the further facts, that the country through which this new line is proposed is more fertile now, very much better improved, containing a larger population, in every way richer than that upon the other route to Greenville, and entirely without di-

rect railway connections with the country north and south of it, there can't be a second thought but that the true course for this important road has been finally found.

From its inception, the Cincinnati & Mackinaw road has been crippled by entangling connections with roads south of Greenville, that commanded the situation from that point to this city.

Sweeping down through the center of the lower peninsula of Michigan, and straight through the north-western tier of counties of Ohio to Greenville, in Darke county, and with a country to sustain it that in extent and resources is unsurpassed in this part of the West, it is a splendid line, and a work that promised as well as any in the country. But at Greenville it was hedged in, and had either to follow the *meanderings* of the present Dayton & Union road to Dayton; or worse, a route from Dodson's Station on that road to Carlisle, in Warren county, and there it was stopped by the C. H. & D. road—or what was nearly as bad, it could have passed on to Eaton, in Preble county, where it was checked again by the Eaton, Hamilton & Richmond road. It seems to have been blocked everywhere.

A correct policy would have determined the line to Eaton, and there have merged the Eaton & Hamilton road into the greater work. And to reach this city from Hamilton, if terms fair and certain had not been granted it, a bold and correct manager would have crossed the river, and found a southern terminus for this long line of road in the central or north eastern side of this city.

Or, being foiled in this, the next best, and, perhaps, all things considered, the better course would have been to leave the direct line at or near Celina, in Mercer county, and crossing the lands dividing the waters of the Wabash and Stillwater, pass into the Stillwater Valley, and follow the easy decline to Dayton, and thence into this city by a line east of the Great Miami river.

These were the only escapes from the difficulties we have narrated. They were not taken, and the work has been feeble from the beginning. Some years since the grading reached Greenville and stopped. The only progress upon the line since has been northward, as far in Ohio as Van Wert, upon the Pittsburg, Ft. Wayne & Chicago road, and in Michigan, from the junction of the M. S. & N. I. road to Lansing, and it is still progressing north of that place, and we believe now, more than ever, that it will go steadily on until it reaches the Straits of Mackinaw.

Aside from local troubles that are always the fate of a weakened scheme, and of which we know nor care nothing, this grand project never had the benefit of a *head*, and, until lately, it seemed as though it was never to enjoy that blessing.

But time and events are curing the misfor-

tunes that have pressed so heavily upon this road. The surveys now going on upon the Stillwater Valley line will open the way to let it into the Valley of the Miamis, thence it will as naturally find its way to the Ohio, as the Miami rivers do.

This will give it the long-desired and much-needed head.

In the meantime, the Northern Pacific Railroad, that is already a "forgone conclusion," will advance rapidly, and attract attention to the Lake Superior country. This will facilitate the completion of the Michigan part of this road to its Northern terminus, the Straits of Mackinaw, and thus will be finally worked out, the Cincinnati & Mackinaw Railroad in its best possible direction, and, in the main, as we advocated it *twenty years ago*.

The building of the Chesapeake & Ohio, and the Southern road, will add immensely to the importance of this Northern scheme, as will be patent to any one who reflects a moment upon their relative positions. They are indeed complements of each other, and necessary to that system of North and South railways that sooner or later will be carried out.

We have a few words of advice for the friends of the C. & M. and Stillwater roads that we believe they will do well to heed:

1st. Let the Stillwater scheme be advanced with the aim of being part of the great main line.

It will be of no value otherwise, and will not be built as soon, if at all, unless it is so merged.

2d. Let the Cincinnati & Mackinaw Company recognize the Stillwater undertaking, and hereafter adhere to it as the means by which their road shall reach the Miami Valley. Keep "*an eye single*" to this line, and under no circumstances deviate from it. What is thrown away is nothing compared to the advantages that will be gained by this new connection.

Such a policy will give the company strength in every step they take, and at a time not far distant, we believe it will command five hundred miles of road that will do an enormous and profitable local traffic, having its Southern terminus in connection with the shortest and best line to the sea, and roads leading to the Gulf of Mexico, and its Northern terminus with the Northern route that leads to the Pacific ocean.

The Chief of Engineers reports to the Secretary of War that Middle Rock, New Haven harbor, has been partly removed, so that the depth of water over it has increased from nine to fifteen feet; \$10,000 will be required to make it seventeen feet, the depth required. The removal of Southwest Ledge and intermediate rocks, in the same harbor, will cost \$55,000.

The State debt of Rhode Island is stated at \$2,927,500.

Life Assurance.

In looking over the reports of the various leading Life Insurance Companies of this country, we find on the whole that they are generally prosperous, and that they are extending their business with great rapidity.

Some of the new companies organized in the East, "with all the modern improvements," are pushing their way through with most commendable energy, and promise to reach within a short period the enviable position of the older establishments.

In this country, we may expect, within a few years, to possess the most extensive and the safest Life Assurance system in the world. Our great Life Companies are so progressive and withal so *elastic*, that they modify their government as developments and experience demand, and thus they keep up with the times, insuring to the policy holder the greatest possible advantages consistent with their own safety.

It would be a curious piece of history in the rise and progress of Life Assurance, to show how and where the changes in their organizations have taken place. How they have all been, from close corporations *out*, to the people who were concerned in them.

Some day this will be written, and it will show the Republican tendency of corporations in this country, and that our people are the most intelligent upon this system of security as well as the best secured in the world.

We have just reviewed the last exhibit of the Knickerhocker Company, of New York, and, although we do not propose to discriminate against other such associations, we must say that, in all that goes to make up a prosperous, safe and reliable company, the Knickerhocker is far ahead of many others, and surpassed by none.

Its management is the most enlightened the country affords, and all its affairs are upon such a solid basis that its advance and prosperity comes as natural and easy to it as the flow of the waters to the sea. What its advantages are to the policy holder, and the long array of figures that have passed the critical review of the Actuary, and that shows its pecuniary condition, are given in the pamphlets and circulars scattered broadcast among the people. We can now only call the attention of the public to them, believing that, upon an examination, they will reach the same conclusions concerning this Company that we have.

—At a meeting of the Presidents of the freight lines leading from Louisville, the tariff was reduced from sixty to fifty cents on the fourth class, and the fast freight companies running over these lines resolved that they would abide by the rates agreed upon by the above officers.

—Nevada, in 1869, produced \$13,815,000 of treasure.

The following circular from the President of the Erie Railroad, which, if strictly adhered to, we commend to other companies throughout the country, as a just and sure means of enhancing the interests of their roads, as well as that of their employees, by giving to all connected, an equal opportunity of procuring that practical knowledge which is indispensably requisite to good management. The precedent which it offers, not only deserves the attention of other kindred corporations, but it should be recognized by and followed by the Government in procuring officiating motive power in all its departments:

"THE ERIE R. R. CO, PRESIDENT'S OFFICE, }
NEW YORK, January 31, 1870. }

"Hereafter there will be kept in the General Office a careful and complete record of all the employes of this company, showing the date when each entered the service, position first engaged in, and date of any promotion or change, together with a memorandum of any special service, or meritorious or other noteworthy act performed, and classified, so near as may be according to the respective qualifications of each party.

"This record will be for the purpose of laying the foundation of an intelligent system of promotions in each department, so that those occupying the lowest positions may, by sobriety, industry and efficiency, attain the highest in the service of the company. As a consequence of this system, no person will hereafter be taken into our employ, except to fill up a gap, without being first employed at the foot of the scale, where they will have the opportunity of competing with the present employes in working their way up.

"Heads of Departments, Division Superintendents, Master Mechanics, Masters of Car Repairs, Superintendent Bridge Department, Superintendent Telegraph, Engine Dispatchers and others, will hereafter be governed by this principle in making appointments to fill vacancies, or supply new positions. They will also, soon as practicable, have one of the accompanying blanks, giving a history of service, filled up for each and every person employed under their direction, and send to me properly certified, and in future promptly notify me of all resignations, removals, promotions and appointments, and of all noteworthy acts, in order that the record may be correctly kept, and the whole property overlooked by some person who will be designated to take charge of this Roll of Honor.

JAY GOULD, President."

—It is said to be the determination of the Lansing, St. John and Mackinac railroad company to commence the grade on the line this spring, if assurances can be obtained that will secure the iron and equipment, and President Steele, of St. Johns, has been authorized to make negotiations.

—The Supreme Court of Pennsylvania, Feb. 24th, decided against the Atlantic and Great Western first mortgage bondholders, in the matter of the lease of that line by the Erie Company, and the lease has been consummated. The Erie Company now control the line from Salamanca to Cleveland and Cincinnati.

Passenger trains are now passing regularly over the bridge at the Falls of the Ohio.

The Boston & Albany Railroad.

The result of the operations of this road, for the year ending Nov. 30, 1868, and 1869, is shown by the following exhibit:

	1868.	1869.
From passengers.....	\$2,290,568 41	\$2,557,592 38
" freight.....	3,410,892 76	3,861,052 32
" mails, etc..	373,143 85	377,811 12
	\$6,074,603 02	\$6,796,453 82
Expenses, viz:		
Repairs of roadway.....	\$653,812 76	\$857,336 57
" engines....	350,856 75	413,510 54
" cars.....	542,961 46	571,008 42
" buildings, ferry etc..	224,533 50	254,033 70
Transportation exp.....	2,328,006 15	2,625,774 33
General exp....	56,002 19	56,663 15
	\$4,156,172 81	\$4,778,326 71
Net balance.....	\$1,918,432 21	\$2,018,129 11
From this deduct:		
Interest on State loans and exch's....	\$247,948 07	
One per cent. to sinking fund.....	55,100 00	
Ten per cent. dividends, including Gov. tax.....	1,648,842 08	
Dividends and Gov. tax, Pittsfield and North Adams Railroad.....	27,000 00	1,978,890 15
Surplus not divided.....		\$39,238 96
Total surplus of contingent fund, Nov. 30, 1868.....	\$1,717,056 21	
Less payment to Great Western R. R., and balance of revenue tax..	3,520 82	1,713,535 39
Contingent fund, Nov. 30, 1869.....		\$1,752,774 35
SINKING FUND.		
Value of Massachusetts sinking fund, Nov. 30, 1868.....		\$1,925,377 42
Contribution in '69..	\$55,100 00	
Earnings in 1869...	211,860 52	266,960 52
		\$2,192,337 94
Paid £90,000 due Oct 1, 1869		
\$180.....	\$432,000 00	
Premiums on exchange.....	95,106 91	527,106 91
Amount of fund, Nov. 30, '69...		\$1,665,231 03
Value of Albany sinking fund, Nov. 30, 1868....	\$603,107 15	
Earnings in 1869...	29,753 39	
		\$632,860 54

Interest paid in '69.	33,300 00
	\$599,560 54
Bonds paid in '69.	93 000 00
Value of fund, Nov. 30, 1869..	506,560 54
Value of both funds, Nov. 30, 1869.....	\$2,171,791 57

It will thus be seen that there has been, in 1869, an increase in the gross earnings of this road, over those of 1868, of \$721,850 80, while the expenses were also increased \$622,153 90; leaving the net increase of earnings, \$99,696 90. This result is not as favorable as might reasonably have been expected from the very large increase of the gross receipts, but is fully explained by the very large amount expended in repairs, new engines, etc.

The following abstract from the report is interesting, in showing in more minute detail the operations and purposes of the management:

The sterling debt has been reduced by the payment from the sinking fund of £90,000, that amount having fallen due on the 1st of October last; and there remains in the hands of the Commissioners of the fund the sum of \$1,665,231 03, for the further liquidation of that debt. Of the Albany City Bonds, \$93,000 have been paid and canceled during the past year, and the Commissioners of that fund have in hand cash and securities more than sufficient to meet the outstanding bonds. The dollar bonds have also been reduced by the payment and cancellation of \$44,500.

We have laid, in the repairs of track during the past year, 9,281 tons of new rails, 1,000 tons of which were of steel, from the works of John A. Griswold & Co., of Troy, N. Y., and our track was never in better condition than at the present time. We have also effected contracts for 4,000 tons of steel rails for early delivery next spring.

The equipment of the road has been increased by the addition of 23 first class engines, eight of which are in substitution of an equal number sold or broken up; the actual complement of engines being increased by 15, thus furnishing us with motive power fully equal to present needs of the business. We have also built and purchased 20 passenger and baggage cars, eight of which belong to the Boston and New York line, and to the freight equipment 428 new cars have been added.

By reason of the elevated location of our road, and its thorough drainage, we have suffered, until the past year, but little from freshets; indeed, the whole damage from that source, since the road was opened for use, would not, it is believed, equal that occasioned by the extraordinary rains of October 4th, when the destruction of culverts, bridges and embankments, was so extensive that, with all the force and material which it was possible to command, we were unable for three days to pass a train over the whole length of our road. The damages have, in the main, however, been repaired, and the superstructures rebuilt. At Wilbraham, where the most serious difficulty was experienced, the work of reconstruction is already in an advanced state. The masonry for the culvert the foundations of which are about seventy feet below the rail, is being replaced with hammered stone, in a most thorough and

substantial manner, and in the course of a few days the work will be ready to commence the filling.

The property of the corporation at East Boston, made doubly valuable by its close connection through the Grand Junction road, with our main line, is now being rapidly developed. During the past year, the docks have been dredged and improved, the wharves and storehouses renewed and put in good condition, and an elevator is being built capable of storing about 380,000 bushels of grain, and so situated as to discharge the products of the West directly into the holds of vessels for foreign export. These wharves are now accessible to all the railroads terminating in Boston, the approach to them, however, is now, for a short distance, over a portion of the Eastern road. A location for an independent connection has been made, for the completion of which some further outlay may be necessary.

In the city of Boston large and valuable additions have been made to the real estate of the corporation in the immediate vicinity of the depot, and at Allston extensive car shops are in process of erection upon the territory of the corporation, recently enlarged by purchase for that purpose. When these improvements are completed, the ground at present occupied by workshops in the city, will afford room for ampler accommodations for engines.

While these and other improvements have been steadily pressed, with a view to the immediate wants of the corporation, we have not been unmindful of the claims which the future will make upon us, and that full provision against any exigency might be secured, we have availed ourselves of the authority given by the last Legislature, to purchase of the Commonwealth fifty acres of the South Boston Flats. This contract was closed with the Harbor Commissioners, the duly authorized agents of the Commonwealth, late in the season, and no steps have as yet been taken for its development.

From the rapidly increasing volume of traffic over the road, and the well recognized importance of speed and regularity in its transportation, the attention of the Directors has been called to the inadequacy of the bridge over the Connecticut River, at Springfield. The superstructure of this bridge is of wood, and as at present constructed, its piers will not admit of more than a single track. To provide, as far as possible, against any interruption to business, which might result from these causes, the Directors have resolved to begin early in the coming season upon the construction of a double track iron bridge. The inadequate accommodations afforded by the passenger depot at this point to the traveling public, has also engaged the serious consideration of the Board; and, although the subject presents peculiar difficulties, it is believed that out of the several plans now under advisement, one will be adopted in which the necessities and convenience of both the public and the various roads interested may be satisfactorily met. This improvement may lead to the necessity of changes in the present workshops and freight arrangements of our road at that point.

At Worcester, also, the insufficiency of our passenger depot accommodations is becoming more and more apparent. Negotiations are now pending between the different roads interested and the city of Worcester, for the construction of a Union Passenger Depot, and it is hoped before another season shall have

passed, some plan will be matured for its accomplishment.

A charter has been obtained for the erection of a new bridge over the Hudson river, at Albany, and it is contemplated to begin upon the work during the coming season. In locating the bridge, special reference will be had to securing ample and convenient depot accommodations on the west side of the river.

The equipment consists of 159 engines, 114 passenger, 37 baggage, and 2,762 freight cars, besides 137 gravel and 100 hand cars. In addition, the Company own considerable over one-third of the equipment of the New York & Boston Express Line.

The cost of the Boston & Albany, Albany & West Stockbridge and Hudson & Boston Railroads, to November 30, 1869, has been as follows:

Boston & Albany Railroad.....	\$14,040,194 60
Equipment.....	2,697,837 78
Albany & West Stockbridge	
R. R.....	2,411,055 75
Hudson & Boston R. R.....	203,036 01
West Stockbridge R. R. stock.	13,000 00
Grand Junction R. R.....	1,051,980 33
Total.....	\$20,317,032 47

BALANCE SHEET FOR 1860.

Cost of road and equipment...	\$20,317,032 47
Hudson River Bridge.....	175,000 00
Notes receivable.....	796,791 04
Materials.....	695,620 45
Cash.....	337,425 12
Real estate and lands.....	100,270 80
Ledger balances due from individuals and corporations.	239,734 54
Commissioners of Massachusetts sinking fund.....	\$1,665,231 03
Trustees of Albany sinking fund.....	506,560 54
	2,171,791 57
	\$24,833,665 99
Capital stock, 164,116 shares...	\$16,411,600 00
£337,400 sterling b'ds, at \$4 80	\$1,619,520 00
Albany bonds...	500,000 00
Dollar bonds...	753,500 00
	2,873,020 00
Unclaimed dividends and interest.....	20,800 00
Dividend No. 4.....	863,257 89
Accumulated sinking fund profit.....	\$1,807,819 86
Less premium paid on exchange.....	95,106 91
	\$1,712,712 95
Contingent fund	1,752,774 35
	3,464,987 30
Loan acct. Baring Bros. & Co	1,200,000 00
	\$24,833,665 99

President.—C. W. Capiu, Springfield.
 Vice President.—D. Waldo Lincoln, Boston.
 General Superintendent.—C. O. Russell, Springfield.
 Asst Superintendent—Abraham Firth, Boston.
 Asst Superintendent—J. B. Chapin, Albany.
 Treasurer.—C. E. Stevens, Boston.

Pittsburg, Fort Wayne and Chicago Railroad.

A misapprehension seems to exist in regard to the arrangement by which the road is operated under lease to the Pennsylvania Railroad; and it has even assumed a form in one of our railway contemporaries which does great injustice to the experienced managers of this admirable line.

It is proper, on this account, to state that the road, in its operating management, is perfectly independent. Its company organization is maintained; and its various officers and agents perform their duties precisely the same as before the lease.

The entire interests of maintenance and operation are still vested in J. W. McCullough as General Manager, who is represented by C. E. Gorham and J. D. Laving, Superintendents of the Western and Eastern Divisions, respectively. These officers have in charge the entire work of maintaining and operating the line. Each division has its master mechanic; while one master-car builder has charge of car building and repair upon the entire line. In the various agencies of the road the old system, and the old officers are also retained—F. R. Myers, Gen. Pass. and Tick. Agt.; W. C. Cleland, Gen. Westn. Pass. Agt.; W. P. Shinn, Gen. Fr. Agt.; R. C. Meldrum, Gen. Westn. Fr. Agt. All these officers, (Messrs. Myers and Cleland having entered service along with Mr. McCullough in March, 1864,) independent in their spheres, under the supervision of the General Manager, bring to the road the full advantage of their experience on the road, and their knowledge of the conditions of successful business in their various fields. Maintaining thus its own organization and spirit, doing its own work in its own way, the road, after paying all operating expenses out of gross earnings, turns over the balance to the Penn. Railroad to be disposed of in accordance with terms of the lease. [*Railway Review.*]

The Peninsula Railway Company.

We have received a copy of the report of the President of this Company, dated at Battle Creek, Jan. 19, 1870. The condition of the Company's affairs are represented as follows:

Subscription to capital stock.....\$284,025 00
Municipal aid voted..... 285,060 00

Total.....\$569,025 00

Collections made on subscriptions.....\$190,916 69
Municipal bonds..... 156,206 00

Total collections.....\$347,116 69

ASSETS.

Unpaid subscriptions..... \$93,108 31
Unpaid municipal bonds..... 128,800 00
Municipal bonds on hand 48,000 00

Total.....\$269,908 31

Indebtedness..... \$40,984 18

Balance.....\$228,924 13

The engineering for the past year cost \$7,526 68. The road bed is done from Battle Creek to Lansing, and half of it between Battle Creek and the State Line. The Company

has issued its first mortgage bonds to the amount of \$1,800,000. The interest is payable semi-annually at New York or London, in gold coin. The rate of interest is not stated, but it is to be free from "government taxes."

Iron and material for the 45 miles between Battle Creek and Lansing is purchased, twenty miles of track laid, the rest of the iron on the way to Battle Creek. Fish-joint rails, weighing 56 pounds to the yard, are used. The Company has two locomotives, thirty flat cars, six box cars, and one caboose car.

The road from Battle Creek to Bel'evien, thirteen miles, was opened on the 1st of December, and has earned \$638,77.

The several railroads from Port Huron to Chicago, have agreed on articles of consolidation. A change in the articles is recommended so as to allow the negotiators to have two directors.

Taking the time and circumstances under which this new enterprise was started, it has certainly done exceedingly well. We hope the managers will be able to complete the entire project from Port Huron to Chicago, in due time. They have been successful thus far.

Upon what terms they have obtained the iron, rolling stock, etc., whether by sale of bonds or otherwise, is not stated; but this is a matter, perhaps, into which the "profane world" has no business to look, so the road is made, the public interests will be subserved.—*Kalamazoo Gaz.*

The Boston, Hartford & Erie Railroad.

The report of an examination into the condition of the Boston, Hartford & Erie Railroad, made by General Stark, of New Hampshire, and Colonel Moore, of New Jersey, was submitted to the Massachusetts House on the 26th ult. It appears from it that in order to open the 225 miles of road between Boston and the Hudson River, 24 miles remains to be finished between Mechanicsville and Williamantic, and 76 miles between Waterbury and Fishkill. The estimates of the engineers have been found to be accurately calculated, and sufficiently large for the completion of the work; for the Eastern Division they amount to \$430,000, and for the Western Division \$2,102,522, including the cost of the rails, &c. The work on those divisions is far advanced. The terminal grounds, at both ends of the road, will require large outlays; those at Boston, including structures and grading, for the immediate wants, \$200,000; those at Fishkill and Newburg, including shops, boats, &c., \$350,000. The through business, on completion of the road, will require an additional equipment of fifty locomotives, twenty five passenger cars, ten baggage cars, and 1,000 freight cars, costing about \$1,600,000. The following is the *resume* of requirements: To complete the Eastern Division, \$430,000; Western Division, \$1,600,000; iron and superstructure, \$500,000; expenditures in Boston, \$200,000; expenditures in Fishkill, \$350,000; new equipments, \$1,600,000; total, \$4,680,000. The report says the importance of the road can not be over-estimated, and that if completed, and the company succeed in attaining the average business success of other roads in Massachusetts, the gross receipts would be \$7,200,000; the running expenditures \$4,800,000, leaving a balance of \$2,400,000, or six per cent. on the capital of \$40,000,000.

The following facts in regard to the present condition of the road are also given:

Capital stock authorized.....	\$25,000,000 00
Number of shares issued	250,000 00
Capital stock paid in or issued (including collateral).....	25,000,000 00
Floating debt last year	1,967,421 85
Floating debt this year.....	7,349,163 74
Funded debt last year.....	14,904,350 00
Funded debt this year.....	21,200,000 00
Total floating and funded debt	28,549,163 74
Amount expended on construction since last year.....	7,458,376 54
Receipts for passengers	294,335 88
Receipts for freight.....	332,925 80
Receipts for other items.....	12,795 37
Net earnings.....	175,724 60
Present amount of mortgage debts.....	21,848,000 00

Earnings of the Great New York Lines for 1869.

From the annual returns to the Legislature of Railway Companies for the year ending Sept 30, 1869, the *N. Y. Tribune* makes the following analysis:

ERIE RAILWAY CO.

Capital stock.....	\$ 78,536,910 00
Funded debt.....	23,398,800 00

Total.....\$101,935,710 00
Cost of road and equipment... 65,131,959 01

Earnings.

Passengers.....	\$ 3,429,629 18
Freight.....	13,046,803 76
Other sources.....	245,067 40

Total.....\$ 16,721,500 34

Expenses.....	\$13,718,005 43
Interest.....	1,703,773 00
Rents.....	824,020 00

16,245,878 43

475,621 91

NEW YORK CENTRAL.

Capital stock.....	\$28,795,000 00
Funded debt.....	11,398,425 89
Interest certificates.....	23,036,000 00

Total.....\$63,229,425 89
Cost of road..... 37,603,696 87

Earnings.

Passengers.....	\$ 4,228,470 24
Freight.....	10,457,581 89
Other sources.....	900,564 26

Total.....\$15,586,616 39
Expenses..... 9,055,485 18

Net.....\$ 6,531,131 21

Interest.....	\$ 891,729 87
Dividends.....	5,418,780 00
Dividends on scrip.....	1,935,524 00
Rents.....	60,000 00
Int. revenue.....	107,421 77
Sinking fund.....	111,182 38—\$5,527,138 02

Surplus.....\$ 1,003,993 19

HUDSON RIVER.

Capital.....	\$16,020,800 00
Funded debt.....	4,309,320 00
Floating debt.....	1,167 00

Total.....\$20,331,187 00
Cost of road and equipment... 19,919,531 42

Earnings.

Passengers.....	\$ 2,269,938 07
Freight.....	3,608,804 33
Other sources	605,715 54

Total.....\$ 6,484,457 94

Expenses.

Transportation...	\$3,770,967 51
Roadway, grading, etc.....	1,095,312 10
Internal revenue.	57,375 80
	<hr/> 4,923,655 41

\$1,560,802 53

Interest.....	\$ 350,829 33
Dividends.....	1,259,363 00
	<hr/> \$1,610,192 33

Deficiency.....\$ 49,389 80

NEW YORK AND HARLEM.

Capital stock.....	\$7,000,000 00
Funded debt.....	5,085,930 00

Total.....\$12,085,930 00

Cost of road and equipment... 10,184,902 59

Earnings.

Passengers.....	\$1,097,670 20
Freight.....	1,258,542 16
Other sources.....	420,678 39

Total.....\$2,776,890 75

Transportation expenses..... 1,817,145 72

Net earnings.....\$ 959,745 03

Interest.....\$340,904 89

Internal revenue.... 27,907 73

Dividends..... 589,473 68—\$958,286 30

Surplus.....\$ 1,458 73

West Jersey Railway.

The success of this railroad, under its able management, since its completion, has been of the most gratifying character. From April 15 to December 31, 1857, the receipts were \$11,762 73—the expenditures were \$8,727 80. From January 1, 1858, receipts \$15,308, expenses \$11,816.

In the year	Earnings.	Expenses.
1859.....	\$ 15 344	\$11,979
1860.....	16,883	13,230
1861.....	34,802	20,452
1862.....	90,122	44,502
1863.....	139,653	80,042
1864.....	207,592	116,408
1865.....	255,593	199,000
1866.....	263,420	178,592
1867.....	283,241	150,977
1868.....	565,643	318,515
1869.....	652,184	384,852

These figures indicate the increase in the business of the road, and prove how sagacious were the calculations of the gentlemen who were the pioneers of railroading in South Jersey. The development of agriculture, manufactures, and mechanical branches of industry has likewise been stimulated and advanced in a corresponding ratio with the increase of the business of the road. Yesterday the annual meeting of the stockholders of the West Jersey Railroad Company was held at their office in Camden, and they re-elected their old Board of Directors. Hon. T. Jones Yorke was again elected President, and George J. Robbins, Secretary and Treasurer.

—The Franklin County corporators of the Columbus and Ironton Railway, held a meeting in Columbus, Feb. 22, at which were expressed gratifying anticipations of the success of the road.

Railway Law.

Illinois.—The following is the substance of the Report from the Committee on Railways in Constitutional Convention:

1. Requiring companies organized and operated under State Laws to maintain a public office in this State, in which shall be kept for public inspection books showing capital stock subscribed, and by whom, the owners of stock, amounts owned by them; stock paid in and by whom; transfers; assets and liabilities, and the names and residences of officers.

2 All rolling stock and other movable property to be considered personal property, liable to execution and sale the same as the personal property of individuals.

3. No consideration of parallel or competing lines; and 60 days public notice to be given of proposed consolidation.

4. The General Assembly to pass such laws as will correct abuses and prevent extortion in the rates of freight and passengers.

5. No bonds or other securities to be issued, except for money taken or properly received and applied to the purposes for which the corporation was created.

6 No obligation of the Illinois Central R. Co. to pay money into the State Treasury, nor any lien of the State upon, or right to tax, the property of said Co. in accordance with the charter of Feb. 10, 1851, shall ever be diminished or impaired.—*Railway Review.*

Railroad Items.

—The Buffalo *Commercial* says that the Lake Shore & Michigan Southern railroad line has received authority to issue tickets from Buffalo to points in China and Japan, via San Francisco, and thence by Pacific Mail steamships. The rates are:

	1st class.	2d class.
Buffalo to San Francisco.	\$133 50	\$103 00
San Francisco to Hong Kong or Shanghai, China.....	300 00	100 00
Total.....	\$433 50	\$203 00
Buffalo to Yokohama, Japan.....	333 50	188 00

—At the recent annual meeting of the stockholders of the Whitehall & Plattsburg Railroad Company, the following gentlemen were elected directors for the ensuing year: John Hammond, H. G. Burleigh, Wm. E. Calkins, A. B. Waldo, J. B. Witherbee, John A. Griswold, Matthew Hale, C. F. Norton, E. S. Winslow, M. K. Platt, N. Lapham, of Peru; James Rogers, of Ausable; T. Hoyle. At a subsequent meeting of the directors, John Hammond was elected President, James Rogers, Vice President, Timothy Hoyle, Secretary and Treasurer. The business of the road from Plattsburg to the Ausable River has exceeded the expectations of the company.

—Among the bills introduced in the New York Assembly on Wednesday was one to reorganize the Erie Railroad Company. The bill was drawn by the counsel of the Erie Railroad, and is designed to forestall the action about to be taken by the English stock and bondholders of the company, and to put Fisk, Gould & Co., in full possession of the road for all time to come. The intention is to buy the bill through the Legislature.

—At a meeting of the St. Louis Board of Trade, Feb. 22, speeches were made by prominent persons, in favor of a railroad from that point to Shawneetown, Illinois, which will open a short route to Nashville and the Southern system of railroads. Resolutions were adopted indorsing the project and pledging St. Louis to furnish material aid if necessary.

—Great Britain has 14,223 miles of railway, on which has been expended \$2,455 000,000. Last year the gross receipts were \$200,000,000. Less than half this sum was required for working expenses, so that upwards of \$100,000,000 remained available in the form of profit.

—At a meeting of the Directors of the Memphis and Little Rock Railroad, held in Memphis, Feb. 22, the old officers were re-elected. Sufficient iron has been purchased for the completion of the unfinished portion of the road between L'Anquelle and Duvall's Bluff.

—The Philadelphia and Reading Railroad Company has in use 1,141 90, miles of single track road, of which 335.21 miles were constructed during the past year. In addition to this, 59.1 miles are now under contract, and 173 miles located and projected.

—The bill loaning the credit of the State to the amount of two millions of dollars to the Alabama and Chatanooga Railroad Company, has passed both branches of the Alabama Legislature.

—An action was brought in the New York Superior Court, on Monday, by George F. Gray, to recover from Fisk, Belden & Co., a balance of \$30,000, growing out of operations in Erie stock.

—There are indications of a revival of the Toledo and Mansfield Railroad project under promising auspices.

—The new branch railroad in Georgia, from Cartersville to Van Wert, which will be finished soon, gives access to what are pronounced the largest and best slate mines in the United States.

—The Erie Directors have been enjoined by the preferred stockholders from recognizing the certificates bearing the tax stamp of the English speculators.

The American company, formed for the purpose of building a railroad across Costa Rica, having failed to carry out the terms, the Government has annulled the grant.

—Some Englishmen have obtained a contract to build a railroad in Japan 300 miles long.

—The South Eastern Counties (Ca.) Railway has been definitely located from West Farnham to Nelsonville.

The Frederick and Pennsylvania Line Railroad will be graded to the Monocacy by the 1st of April.

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Everybody can have the benefit of 30 years experience, in my New Descriptive Catalogue of 56 pages, for 10 cents. It tells what and how to plant.

WM. PARRY,
Cinnaminson, N. J.

Fresh Garden, Flower, Fruit, Herb, Tree, Shrub and Evergreen Seeds, with directions for culture, prepaid by mail. The most complete and judicious assortment in the country. Agents wanted.

25 Sorts of either for \$1.00; prepaid by mail. Also Small Fruits, Plants, Bulbs, all the new potatoes, &c., prepaid by mail 4 lbs. Early Rose Potato, prepaid, for \$1.00. Conover's Colossal Asparagus \$3 per 100; \$25 per 1000, prepaid. New hardy fragrant everblooming Japan Honeysuckle, 50 cts. each, prepaid. True Cape Cod Cranberry, for upland or lowland culture. \$1.00 per 100, prepaid, with directions. Priced Catalogue to any address, gratis; also trade list. Seeds on Commission. B. M. WALTON, Old Colony Nurseries and Seed Warehouse Plymouth, Mass. Established in 1842. 6-1-70, 17.

A CARD.

A Clergyman, while residing in South America as a missionary, discovered a safe and simple remedy for the cure of Nervous Weakness, Early Decay, Diseases of the Urinary and Seminal Organs, and the whole train of disorders brought on by baneful and vicious habits. Great numbers have been cured by this noble remedy. Prompted by a desire to benefit the afflicted and unfortunate, I will send the recipe for preparing and using this medicine, in a sealed envelope, to any one who needs it, *Free of Charge*.

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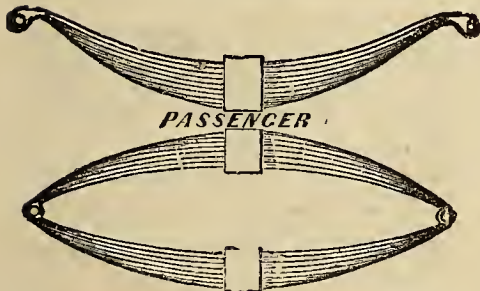
7-10-9, 13.

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SEALED PROPOSALS will be received at the Engineer's office at Charleston, W. Va., until 12 M. March 1, 1870, for the GRADUATION, MASONRY and the SUPERSTRUCTURE OF BRIDGES on the Chesapeake and Ohio Railroad between the Falls of Kanawha and the Ohio River, including THREE MILLIONS CUBIC YARDS OF EXCAVATION, and SEVENTY THOUSAND CUBIC YARDS OF MASONRY.

Also, at the Engineer's office at Richmond, Va., until 12 M. March 10 1870, for several heavy sections east of the Falls of Kanawha, including the unfinished work near Millboro' and that eight miles east of the White Sulphur Springs the Great Bend tunnel 6,400 feet; Lewis tunnel, 3,800 feet; five other tunnels from 500 to 1,700 feet long; several sections in rock cutting; and about 70,000 cubic yards of masonry.

Profiles and specifications can be found at the office of the company 54 William street New York, and after February 15 at Richmond, Va., and at Charleston W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia.

C. P. HUNTINGTON

President.

27-1-70, 4.

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JANUARY 1st, 1870.

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Osgood Accommodation..... 3:10 P. M. 8:45 A. M.
Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

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NEW YORK, NEW ENGLAND

—AND—
Pennsylvania.

This Railway extends from
CINCINNATI to NEW YORK, - 860 Miles.
CLEVELAND to NEW YORK, - 625 Miles.
DUNKIRK to NEW YORK, - 460 Miles.
BUFFALO to NEW YORK, - 423 Miles.
ROCHESTER to NEW YORK, - 385 Miles

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22 to 27 MILES the SHORTER ROUTE.

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Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

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The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this line, will find in its ever changing landscapes subjects of continual admiration and interest.

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And Fare always as Low as by any other Route.

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North west and South-west.

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Indianapolis and Lafayette Mail....	7:20 am	12:40 am
St. Louis and Springfield Express....	2:40 pm	7:35 am
St. Louis and Springfield Express....	10:20 pm	3:42 pm
Lawrenceburg Accommodation.....	10:10 am	2:35 pm
Lawrenceburg Accommodation.....	4:00 pm	8:25 am

*The 10.50 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7:00 am	10:15 am
Chicago Express.....	6:50 pm	9:30 pm
Harrison Accommodation.....	5:50 pm	7:10 am

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J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)....	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:20 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond....	7:15 A. M.	10:25 P. M.
do do	5:30 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots, East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
SAM'L STEPHENSON, Gen'l Ticket Ag't.
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The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburgh, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

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Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7:35 A. M.	2:30 P. M.
Evening Express.....	7:15 P. M.	3:45 P. M.
Night Express	11:15 P. M.	5:00 A. M.
Walton Accommodation.....	4:10 P. M.	9:35 A. M.

The 7:35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House or Dept. Covington, Ky.

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CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Esion with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckahoe, &c.

7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Old Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburgh, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburgh, and the West—connects at Harrisburg with train for Williamsport, Erie, &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. B. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MARCH 3, 1870

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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New Railroads and What they Propose.

In our last number, we mentioned several new railroads, which were made or making. We shall continue this subject in reference to some new enterprises:

In making the connection with the Chesapeake & Ohio Railroad, a question arises which has come up heretofore repeatedly in the columns of the RECORD. What is the best railroad entrance into Cincinnati? And has not the time come when considerations of interest and sound policy require some one or several of the great railroad lines should come in on the upper plane of Cincinnati? For this purpose the tunnel was projected, and we must ever regard it as a great misfortune that that work was not finished. It may yet be made for a moderate sum of money, and we doubt whether the cost of a new entrance into Cincinnati, entirely independent of any other, would not be greater than the cost of finishing the tunnel. It would, in addition, make a saving in distance—a saving in the cost of running and of handling, etc.—give a much greater convenience in the distribution of passengers and freight through the city.

The time is near when the majority of the people in Cincinnati will live in the upper part, or on the hills, and when a depot in the upper plane would have immense advantages. In connection with this subject, we notice that a company is to be organized to make a road from Cincinnati through Lebanon and Waynsville to Delaware. We do not know what hopes are formed of its success; but we suspect this is a plan of the Cleveland & Colum-

bus road, or, perhaps, of the N. Y. Central for a shorter line into this city; and unquestionably, the line would be shorter and better. It would save ten miles between Cincinnati and Xenia, and quite as much between Xenia and Delaware. Books of subscription, we see, are opened; but the question again arises, where is that road to enter Cincinnati?

Any road which proposes to do through business can not come in on the track of another road, for rivalries, collisions and oppositions would arise at once. The same question arises with those who propose to connect with the Chesapeake & Ohio. On what route do they propose to come from Columbia in? We can conceive of only one mode, without the tunnel. If the Cincinnati and Virginia road comes in at Milford, Plainville or Columbia, according to the route adopted, there is a necessity of coming in without being dependent on the Little Miami road. How shall it be done? The tunnel route would be a solution of the problem. But suppose the tunnel is not adopted, what then? There is then, really, but one mode left. This is to take a line from Columbia above that of the Little Miami road, and turning to the right at Deer creek, come in on the upper plane of Cincinnati, by a gradual grade up Deer creek. This is possible, though at a great expense. When done, this would be the best railroad entrance into Cincinnati. What may be the future of the enterprise we have spoken of, we do not know; but it seems to us, that if either the N. Y. Central, or the Virginia road are to be made, and to be successful, they must enter Cincinnati on the upper plane.

Proceeding now with new enterprises in railroads:

1. We have the Cincinnati, Xenia and Delaware, or in short terms, the Short Line road to Cleveland. This road will be 52 miles from Cincinnati to Xenia, and 65 from Xenia to Delaware, making 117 miles from Cincinnati to Delaware, and 27 miles shorter from Cincinnati to Delaware. Taking the whole together, it would save an hour's time in distance, and also something in running time. In a great through route, traversing the whole country, this is very desirable. We do not know who or what may be at the bottom of this enterprise, but certainly it is one which has some promise in it.

2. Another railroad which seems to be almost a necessity, is the one proposed from Toledo to Pomeroy. Toledo is the center of a district which is without coal, iron and salt. Pomeroy is the center of a district which has all of these. To connect them, therefore, seems a necessity, for both commerce and manufacture. This line, if made, will be nearly on a straight line. It will go from Toledo, through Fostoria, Upper Sandusky, Cardington, Granville, Newark, Straitsville, Nelsonville and Pomeroy. At least that is the direct line for the road, and there are no

natural obstacles in the way. It is very evident that this would be a coal road, probably unsurpassed in business by any one in the United States. We are told that a Company is already formed to mine coal at Nelsonville, or that neighborhood, to carry coal to Chicago. The fact is, that the whole region running through Toledo and Chicago to the North-west, must be supplied with coal, for it is the motive power of all machinery, and by far the best fuel. This being so, a direct air line railroad to the best deposits of coal in America, of Straitsville, Nelsonville, etc., is the best means of getting it. It will be but few years before this whole country will use at least five-fold the amount of coal it now consumes. The result of that is there must be coal roads. There will be, and they will be made, although it may take several years yet to do it. The railroad from Toledo to Pomeroy is a necessity, and the best line on which to take it is the straight line. But there is another thing connected with it which is of vast importance to Toledo. Toledo is to be a great city, probably as large as Chicago. Then Toledo must have a trunk line to the South, and here it is, if this road is made. Pomeroy is but twenty miles above the mouth of the Kanawha, and there one branch of the Chesapeake & Ohio Railroad will come. The connection will be almost on a straight line. Hence, if the road be made to Pomeroy, that will be a direct connection from Toledo with the Virginia road, and ultimately with Norfolk.

3. While on this subject, we may notice some railroad enterprises to the west of us, which are of great importance in their several localities, and will be useful to the country. One of these is on the western border of Ohio. This is the Stillwater Railroad, as it is called. The Stillwater branch of the Miami joins with this river at Dayton, having pursued a course from the north nearly parallel with the Miami. Pursuing the valley of the Stillwater up, the road would soon reach the Wabash and Maumee in Mercer county, and be naturally terminated at Celina. The valley of the Stillwater is very rich and productive, and has no outlet. For the people living in it, this road would be very valuable, and would pay for its cost. But there is another light in which to view this enterprise. May it not be a through road, for the whole northern trade? In one word may it not be the veritable Cincinnati and Mackinaw road, of which we have in times past said so much? Why not? It is, in fact, on the line of that road. From Celina the road would go to Van Wert, and thence on in the manner we have pointed out heretofore, and where there will, beyond doubt, be a great road made hereafter.

All that has been said on this subject will be fulfilled. Cincinnati and Mackinaw, aye, and Pensacola too, will be united by one

grand axial line, spanning this continent. At present the Stillwater line is an unpretending local enterprise; but even in that light it meets with some local difficulties. Its natural termination as a local line, is at Dayton, but will Dayton claim it by an ample subscription? If not, there is another route proposed. This is to go down Twin creek to Germantown, and Carlisle Station on the Hamilton. As a through route, this would be as good as the Dayton; but, one would think, that Dayton would never permit such a road to go by her, and so we believe. We meddle not with that question, but two things we do believe, that the Stillwater valley must have a road for its own benefit, and that the great Cincinnati and Mackinaw road will be made.

Pennsylvania Railroad Company's Twenty-third Annual Report.

OFFICE OF THE PENNSYLVANIA R. R. Co., }
PHILADELPHIA, February 12, 1870. }

To the Shareholders of the Pennsylvania Railroad Company:

Your Directors take pleasure in submitting to you the satisfactory results of the operation of your railroads for the year 1869, as follows:

EARNINGS.	
From passengers.....	\$ 3,500,071 06
From emigrant passengers....	131,065 93
From mails.....	118,961 91
From express matter.....	302,654 54
From general freights.....	12,932,656 88
From miscellaneous sources.....	265,401 41
	<u>\$17,250,811 73</u>

EXPENSES.	
For conducting transportation..	\$3,503,792 57
For motive power.....	3,679,195 15
For maintenance of cars.....	1,464,589 22
For maintenance of road.....	3,341,568 10
For general expenses.....	213,852 56
	<u>\$12,203,267 60</u>

Leaving net earnings for 1869 of.....	\$5,047,544 13
The total amount of revenues, compared with last year, is:	
1869.....	\$17,250,811 73
1868.....	17,233,497 31

Increase..... \$17,314 42

The changes in the sources of revenue are shown below:

Increase in regular freights.....	\$50,491 58
Increase in emigrants.....	52,821 64
Increase in mails.....	18,980 66
Increase in express matter.....	10,773 33
	<u>\$133,067 21</u>
Decrease in first class passengers.....	\$31,832 88
Decrease in miscellaneous sources.....	83,919 91
	<u>115,752 79</u>
Increase as above stated.....	\$17,314 42

The apparent decrease in first-class passengers, shown above, is explained by the circumstance that there is included in the earnings of 1868 for military transportation, due in previous years, \$113,433 29-100, whilst the collections from the same source in 1869 were but \$5,655 66-100. By adding this amount to the reported decrease, and deducting the sum from that received in 1868 (\$113,438 24 100), it will have an actual increase of first-class passenger traffic in 1869 over 1868, of \$75,944 75-100.

The gross revenues for 1869 are equal to \$48,186 62-100 per mile of the main line of railroad.

The whole number of passengers carried in 1868 was 3,747,178; and in 1869, 4,229,363—an increase in the number carried of 482,185, or nearly 13 per cent. The average distance traveled by each passenger was 34 22-100 miles, being 1 32 100 miles less than in 1868; showing this increase still to be mainly upon the local traffic of the line.

The number of tons of freight moved (including 410,966 tons of fuel and other materials transported for the company), was 5,402,991—embracing 2,329,358 tons of coal. The whole tonnage of your railway exceeds that of last year 680,976 tons, of which increase 264,309 tons is bituminous coal.

The average charge per net ton, per mile, upon freight during the year, was 1 718-1000 against 1 906 1000 cents last year; and per passenger, 2 51-100 cents against 2 71-100 cents last year; or an average decrease in freight charges of 9 9-10 per cent., and in passenger charges of 7 4-10 per cent.

The earnings of the Philadelphia & Erie Railroad, in 1869, were:

From passengers..	\$ 672,964 46
From freights.....	2,507,082 93
From express matter.....	31,327 51
From mails.....	24,616 67
From miscellaneous sources.....	26,713 72

Total (exceeding \$11,000 per mile of road).....\$3,262,705 29

The operating expenses during the same period, were:

For conducting transportation...	\$671,606 07
For motive power.....	749,641 82
For maintenance of cars.....	213,546 07
For maintenance of way.....	733,415 17

\$2,368,209 13

To which add 30 per cent. of earnings, payable to the Philadelphia & Erie Railroad Company..... 956,009 12

\$3,324,218 25

Showing a loss to this Company in operating the line under the lease (in addition to interest upon the capital invested in rolling stock, &c.) of..... \$61,512 96 which is \$21,661 69 less than in 1868.

The low rates at which the Philadelphia & Erie Railroad Company is compelled to carry its freights—averaging but 1 4-10 cents per ton per mile—and the small passenger business it can command from the sparsely populated country that its road traverses, added to its greater distances as a through line from Eastern cities to all points in the West, are

the reasons that more than 70 per cent. of its receipts are required to meet its working expenses. The operations of this railway during the past year have been carefully and economically conducted by A. L. Tyler, Esq., its General Superintendent.

In this connection, it may be stated that, owing to some errors in the location of this line, but mainly from financial sacrifices incurred during its construction, this railway, with a single track of only 288 miles in length, laid with lighter iron rails, and but partially ballasted, cost the Philadelphia & Erie Company, without any equipment, \$19,759,171 92, whilst the Pennsylvania Railroad, passing over a much more expensive country to build a railway upon, with a double track of 358 miles, laid with heavy iron, and well ballasted, including a third or single track of 29 miles between Lancaster and Middletown, and branches to Hollidaysburg and Indiana of 26 miles, in all equal to 771 miles of single railway, exclusive of sidings, is represented by \$21,346,024 56, a difference of less than \$1,600,000 upon the cost of over 265 per cent. more of single track railway.

These facts are referred to at this time only to show why it is that the shareholders of one of these lines have received regular dividends, while the other line has been unable to earn them.

The earnings of the Pittsburg, Fort Wayne & Chicago Railway, under its lease to this company, for the six months ending December 31, 1869, were.....\$4,146,822 22
And the expenses during the same period were..... 2,826,095 92

Balance.....\$1,320,786 30
The semi-annual rent, with the interest on the bonds of the company, expenses of maintaining the organization, contribution to the sinking fund, &c., &c., amounted to..... 1,283,991 87
Showing a profit in the operation of the lease of..... \$36,794 43

The revenues of the lines operated by this company, and the amounts paid for their working expenses, interest and dividends, are as follows:

From the Pennsylvania Railroad and branches.....\$17,250,811 73
From the Pittsburg, Ft. Wayne & Chicago Railway, for six months, ending December 31, 1869..... 4,146,882 22
From the Philadelphia & Erie Railroad..... 3,262,705 29

Amount.....\$24,660,399 24

And the expenses of operating these lines were:

Penn. R. R.....\$12,203,267 60
Pittsburg, Fort Wayne & Chicago R. W., including rent, &c..... 4,110,087 79
Philadelphia & Erie R. R., including 30 per cent. due that company..... 3,324,218 25

Total.....\$19,637,573 64
Leaving the net profits from the three railways, for 1869..... 5,022,825 60

Erom which deduct dividends declared in May and Nov., with the taxes thereon..... \$3,075,643 24

Balance to debit of interest account and discount on bonds 888,375 10

Due for the lease of the Harrisburg & Lancaster Railroad.... 135,274 18

Annual payment to the State of Pennsylvania on account of interest and principal due upon the purchase of her works between Pittsburg and Philadelphia... 460,000 00

\$4,559,292 52

Leaving a balance of..... \$463,533 08

In our last annual report, the Board referred in detail to the railway companies controlled through the ownership of a majority of their shares, and it is unnecessary to again mention them, further than to say that they continue to fulfill the objects this company had in view when this interest was acquired, while they yield a reasonable profit upon the capital invested.

The working expenses of the other lines of railway leased by the company, not already referred to—all of which are in Pennsylvania—show a balance of receipts over expenses.

In reference to the past and future policy of the company, the report says:

The original policy of this company was to reach the traffic of the North-west, West and South-west, by assisting the construction of tributary lines leading to the markets of these sections; but not to control their management beyond the State of Pennsylvania. With this object in view, it gave to the Pittsburg, Fort Wayne & Chicago Railway Company, at several periods of its extremest need, large advances to complete its line and preserve its property to its shareholders, under written pledges that its Eastward business should follow the direction which prompted and justified this company in granting the assistance so earnestly solicited. Under the conviction that this agreement was ample, it was not believed that further protection to your interests in the North-west was either desirable or important. The rapid growth of this section of the country, however, placed that company, in a few years after its completion, in a condition of great prosperity. It then, unmindful of its former obligations, endeavored to seek other Eastern connections that it could control, though this company at all times gave to its business the same rates per mile that it charged upon its own line, upon both passengers and freight. Extensive surveys were accordingly made of the regions east of Pittsburg by that company to find a suitable line for this object, followed by material, pecuniary advances to a railway company, whose road it was proposed to use, as a part of this rival route to the East; but during the progress of these movements, an effort was inaugurated by the Erie Railway Board to absorb not only the Pittsburg, Fort Wayne & Chicago line, but nearly all the Western con-

nections of the Pennsylvania Railroad Company, which only failed from a misapprehension of the terms of the law, under which they proposed to accomplish their object, and subsequent adverse legislation procured by the President of the Fort Wayne Company.

In view of these extraordinary movements, it became evident to your Board that this company must depart from the policy that had heretofore governed it, and obtain direct control of its Western connections. Negotiations were accordingly opened with the Directors of the Pittsburg, Fort Wayne & Chicago Railway Company, who had also become apprehensive (under the vicious system that had been developed in New York, by which stock and bondholders of railways and their agents, sold their proxies to vote at the elections of the company, without any regard to the interests involved in the issue), that their own work might fall into hands whose object would be to seriously impair the permanent interests of their constituents.

After a lengthened negotiation with the Directors of that company, a lease was agreed upon, and this company entered into possession of the Pittsburg, Fort Wayne & Chicago Railway on the 1st of July last. The terms of this lease, which gave to the shareholders 12 per cent. on their capital, were at the time considered very onerous, and only justified by the circumstances already referred to. The results of its operation, however, for the first half year, notwithstanding a diminished revenue of \$304,595 90, compared with that of the same months in 1868, have, through a vigorous retrenchment of expenses, left a net profit of \$36,794 43 over all outlays, including the semi-annual contribution of \$52,050 to the Sinking Fund.

The report further adds:

The same reasons that induced this company to become the lessee of the Fort Wayne line, prompted the Pittsburg, Cincinnati & St. Louis Railway Company, in which this company holds a majority of its shares, to take at an earlier period a lease of the lines owned by the Columbus, Chicago & Indiana Central Railway Company. The results of this lease have not proved so satisfactory. The railway was found, contrary to expectations, to be, to a considerable extent, in an unfinished and a dilapidated condition, deficient in depot accommodations, with a limited rolling stock largely out of repair, and shops entirely inadequate to place this machinery in good order. These deficiencies had to be supplied, and in the meantime its road and rolling stock could only be placed in condition for economical service at great extra cost.

Upon a representation of these facts to the company, modifications in the lease have been made by it, which will, it is believed, render it acceptable to the lessees and to this company, their largest stockholders.

These several arrangements still left our connections with Cincinnati, the great trade center of the south-west, incomplete, the business with which has been steadily increasing since the termination of the late war. To perfect these, the Pittsburg, Cincinnati & St. Louis Railway Company has also agreed upon a lease with the Little Miami Railroad Company of their line, through whose railroad our connection with Cincinnati will be made thus enabling this company to participate in the growing prosperity of that city.

The connections of your line with St. Louis, the great city of the Mississippi Valley, are now complete by way of Crestline, and nearly so upon the shorter and more direct route

through Columbus, Indianapolis, Terre Haute and Vandalia. With these arrangements, all of which will be perfected this year, we will limit our extensions, unless some overruling necessity should require us hereafter to go further. We have no interest in any line beyond the Mississippi river.

Unwilling as we have been to enter upon this policy, a careful review of the subject since its adoption leaves no doubt as to its wisdom, under the circumstances that have been developed within the past eighteen months.

The report closes with the following:

The Directors take pleasure in again expressing the obligations of the company to its General Superintendent, E. H. Williams, Esq., and his two assistants, John A. Wilson, Chief Engineer, and A. J. Cassatt, Superintendent of Motive Power, for their careful and judicious management of the interests committed to their charge.

Respectfully submitted, by order of the Board,
J. EDGAR THOMSON, President.

Railroad Companies—When Common Carriers of Passengers by Freight Trains.

The facts of the recent case of The Chicago and Alton Railroad Company vs. Flagg (43 Ill., 365,) are fully and clearly stated in the following opinion by

Lawrence, J.—This was an action on the case brought by the appellee against the railway company for wrongfully expelling him from one of its trains. Being desirous of traveling a short distance on the road, he entered what is called a caboose car, attached to a freight train, without a ticket. From the conversation which subsequently took place between him and the conductor, as drawn out by the defendant's counsel on the cross-examination of witness, it appears he was unable to procure a ticket, because the ticket office was closed. When his ticket was demanded on the train he offered to pay his fare, and also offered to give the conductor ten dollars to be kept by him until a ticket could be procured at the next station.

The conductor replied that he was forbidden by the rules of the road to receive money for fares, and should he do so he might lose his place. The train stopped at a water tank about a quarter of a mile from a station called Lanndale, and the conductor there required the plaintiff to leave the train. No resistance was made by him, and no violence or insult offered by the conductor. The jury gave the plaintiff a verdict of one hundred dollars, for which the Court rendered judgment.

It appears from the record that, although this was a freight train, yet it regularly carried passengers, and was held out to the public as so doing. The company itself put in evidence a printed notice, with certain regulations in regard to the carriage of passengers on freight trains, and forbidding conductors to carry them unless provided with tickets in advance. It was, therefore, a common carrier of passengers by this train as well as by its regular passenger trains, and would have no more right to expel a traveler, wantonly, and without cause, from one train than from the other.

It is urged, that the company must have the power to make reasonable rules for the government of its trains. Undoubtedly, and if a company deem it advisable to require tickets to be purchased before taking passage

on certain classes of trains, its authority to do so must be conceded. If its rules in this respect are knowingly disregarded, a passenger may be required to leave the train at any regular station, but only at such stations, as decided in the *C, B & Q. R. R. vs. Parks*, 18 Ill., 465. The willful neglect to comply with the rules in this matter would be like a refusal to pay the fare, and could place the passenger in no worse position. But when the company requires tickets to be purchased at the station, it must furnish convenient facilities to the public by keeping open the office a reasonable time in advance of the hour fixed by the time table for the departure of the train. Should it fail to do this, a person desiring to take passage would have the right to enter the train and be carried to his place of destination by payment of the regular fare to the conductor. To permit a company to complain of a violation of its own rules necessitated by the negligence of its own agents, would be absurd. If then, as is fairly inferable from the evidence, the plaintiff was prevented from buying a ticket by the absence of the ticket agent, he was rightfully on the train, and his expulsion was unlawful.

But even if wrongfully on the train from willful non-compliance with this rule, he was expelled at a place which, under the statute, rendered the expulsion itself illegal. It is urged, that a water tank, if an "usual stopping place," is within the letter of the law. It is within the letter, but so obviously without its spirit, that to permit a passenger to be expelled at a water tank, often miles from a station, and from remote highways and habitations, would defeat the object of the law, and be a striking instance of "sticking in the bark." As has been several times said by this Court, the statute means the usual stopping places for the discharge of passengers.

It is in proof that passengers, desiring to enter or leave the train at Landale station, often did so at this water tank, as the freight train frequently passes the station itself without stopping, and the tank was only a quarter of a mile distant. It is also in proof, that passengers left at the station when the train stopped there. Whether this tank was the usual place for the discharge of passengers from freight trains, was distinctly left to the jury by the sixth instruction for the defendant; and they found it was not. Their finding was undoubtedly right. A local usage adopted by persons living in the neighborhood and familiar with the ground, for their own convenience, can not be considered as making any place but the regular station the proper point for the discharge of passengers.

It is also urged, that, as the conductor acted in good faith, and without violence or insult, and there is no proof of actual damage to the plaintiff, the verdict should have been for only nominal damages. The verdict was for one hundred dollars. It was after dark when this affair occurred, and the plaintiff was lame and had two bundles that seemed to be heavy. In order to reach the station or village, he had to pass over a covered railway bridge which spanned a stream, and which he had to cross by means of a plank walk or foot path, about three feet wide, laid down upon the timbers. The only light came from below and from the ends of the bridge. For a stranger laden with bundles, to be compelled to walk through a dark railway bridge at night, on a narrow path, uncertain as to when a train may come, and liable to be crushed if

one does come, is certainly not a desirable experience. The jury had the right to take these things into consideration, and as the plaintiff himself had been guilty of no delinquency, and was anxious to pay his fare, and as his legal rights were violated in expelling him from the train, it was proper for the jury also to consider, not only the annoyance, vexatious delay and risk, to which he was subjected, but also the indignity done to him by the mere fact of expulsion. This case is widely different from that of the *Chicago and Alton R. R. Co., vs. Roberts*, 40 Ill., 503. We can not say the damages were excessive.

It is urged, that the Court erred in refusing the defendant's seventh instruction, which was, in substance, that, even if the plaintiff was wrongfully put off the train, yet if the conductor acted in good faith and without violence, the jury could give only such actual damages as the plaintiff sustained, or if he sustained none, then only nominal damages. It is unnecessary to add what we have already said on this subject. In a case of this character, where the plaintiff was without fault, the jury had a right to give more than nominal damages, even though no pecuniary loss or actual injury to the plaintiff's person was proven. The considerations above named may properly enter into the verdict in a reasonable degree. Neither did the Court err in modifying the other instructions by adding that the phrase "usual stopping place" means in the statute a regular station for passengers to get on and off the train. That is what it does mean. *Chicago, B. and Q. R. R. vs. Parks*, 18 Ill., 465. Judgment affirmed.

[*Amer. R. R. Journal.*]

Railways into the Trans-Mississippi Country.

It is scarcely possible to separate the prosecution of works of public utility from the stimulating element of exceptional private interest; and whether, if possible, it would be wise to make the separation is extremely questionable.

We have never doubted that, ultimately, a spirit of practical railway enterprise would address itself, in downright earnest and in palpable shape, to the great question of opening to New Orleans the vast magazines of wealth in the interior of the trans-Mississippi country. There they were lying, from year to year, receiving new stores as population and industry flowed westward, but almost as strange and unapproachable to this city as though she had been excluded by the encircling line of some sinister enchantment. The hour was yet to come for this spell to break under the only exorcism which it could not defy. We believe that now, at length, this hour is near at hand.

Time, as well as animated nature, has its gestations and births. Like circumstances generate like results. It is inconceivable that there should not be a development of a trans-Mississippi railway system from the radiating point of New Orleans under circumstances such as had resulted in similar developments on lines centering in other cities. As population and industry have advanced further and further, and increased more and more, in the vast productive area stretching westward of New Orleans, they have been gradually assimilating the situation of this city in respect to that area to the situation of Chicago, in respect to the rapidly settled regions westward

of that city, when she began to extend iron arms to gather in from those regions the produce on which is founded the wonderful growth of her commerce. There is no occasion here to consider why emigration has been so fast to pioneer the way for railway enterprise in Illinois, Northern Missouri, Iowa, Wisconsin and Minnesota, and so slow to do so in Western Louisiana, Texas, Northern Mexico, Arkansas and the Indian Territory. It is sufficient to know that time was bound to bring forth the event at last whenever the natural period of gestation should be accomplished, and that this birth—railway extension from this city in the westward track of population and industry—is now at length impending.

But the great work of public utility which we all desire to have speedily executed we can not reasonably expect to see undertaken, and prosecuted with effective vigor without the intervention of private interest to furnish the enterprise with a special motive and a sustaining stimulus. This has been the secret of the unexampled amount of railway construction in the United States. Even the Pacific Railroad would not now be in existence if private speculation had not taken hold of it, with the single and fierce desire to grasp as clear gain beyond all expenses, the magnificent subsidies from the Government, contingent upon the completion of its several sections.

Let no one throw impediments in the way of the wholesome operation of this principle in the incipient inter-oceanic railway system of which it is the manifest destiny of New Orleans to be the great south-western center. Let all of us give it a recognition and a welcome that shall be candid and liberal while considerate and wise.

There are two projects now before the public proposing to give this city railway connection with Texas. Each is supported by a powerful private interest eager for gain, and each is trying to obtain special legislation in its favor.

Upon the bill in which the Chattanooga Railroad Company couched their demands for State aid, we have already animadverted. The kind of aid which they asked was very much like that which the wolf receives from the lamb when he devours it. To promote effectively such a road as the company promised to build, might well excite the ambition of the State and the city, but that they should pant and palpitate with aspiration to be swallowed and digested, at the convenience and pleasure of the company, surpasses credibility.

The Berwicks Bay & Texas Railroad Company are infinitely more modest and reasonable in the terms which they propose, as expressed in the bill in their behalf now pending in the House of Representatives. They ask nothing in addition to the necessary franchises of roadway and river transits, except \$1,500,000 in State bonds, conditioned upon the completion and the commercial operation of the road within the period of twenty-eight months. This is less than one-half the amount of the same kind of aid asked by the other company. Besides, they offer to give a satisfactory bond in the penal sum of \$1,000,000 to insure the faithful performance of their part of the contract, which the other company does not offer to do; and they demand no exclusive right of way, which the other company does demand.

It is represented by the friends of the Berwicks Bay project, that it can count upon pecuniary assistance without delay from Mr

Charles Morgan to the extent of \$2,000,000, and that this sum added to other resources, including the proposed grant of State bonds, will be sufficient for the building and equipment of the road according to stipulation. This representation looks altogether reasonable. To doubt the practicability of an enterprise so well off in available means, would be simply captious, and members of the Legislature who have been ready to vote \$4,000,000 of aid to the Chattanooga Railroad Company in consideration of the unguaranteed extension by that company of a road to Texas, could not present the shadow of a pretext for refusing, if they should refuse, to vote the \$1,500,000 asked in behalf of the Berwick Bay Railroad Company. Nevertheless, we should not begrudge the former company all the favors that can be consistently conceded. It is well to encourage and to assist, upon just and safe conditions, both roads. It would be a disastrous want of foresight to act upon the assumption that one road would be sufficient for all time. Depend upon it, railway communication having once opened the heart of the far trans-Mississippi country to New Orleans, two roads will not be equal in ten years to the wants of the growing and incalculable trade in that direction.—*New Orleans Commercial Bulletin.*

Tunnel under Dover Straits.

The Straits of Dover are, we believe, twenty-two miles across, and are a most serious obstacle to a "close connection" between the railroad systems of France and England. The last theoretic effort to make a "forward movement" against this "barrier" to commerce, is very clearly given in a report of the engineers, Messrs. Hawkshaw, Brunlees & Low, in connection with Messrs. Talabot, Chevalier & Gamond. It is, of course, but a question of "time and money."

"The engineers, some of whom have been engaged for a series of years in investigating the subject of a tunnel between France and England, have attentively considered those investigations and the facts which they have developed, beg to report thereon jointly for the information of the committee.

"These investigations supported the theory that the Straits of Dover were not opened by a sudden disruption of the earth at that point, but had been produced naturally and slowly by the gradual washing away of the upper chalk; that the geological formations beneath the Straits remained in the original order of their deposit, and were identical with the formations of the two shores, and were, in fact, the continuation of those formations.

"Mr. Low proposed to dispense entirely with shafts in the sea, and to commence the work by sinking pits on each shore, driving thence, in the first place, two small parallel driftways or galleries from each country, connected at intervals by transverse driftways. By this means the air could be made to circulate as in ordinary coal mines, and the ventilation be kept perfect at the face of the workings.

"Mr. Low laid his plans before the Emperor of the French, in April, 1867, and in accordance with the desire of his Majesty, a committee of French and English gentlemen were formed in furtherance of the project.

"For some years past Mr. Hawkshaw's

attention had been directed to this subject, and ultimately he was led to test the question, and to ascertain by elaborate investigations whether a submarine tunnel to unite the railways of Great Britain with those of France and the Continent of Europe was practicable.

"Accordingly, at the beginning of the year 1866, a boring was commenced at St. Margaret's Bay, near the South Foreland; and in March, 1866, another boring was commenced on the French coast, at a point about three miles westward of Calais; and simultaneously with these borings an examination was carried on of that portion of the bottom of the channel lying between the chalk cliffs on each shore.

"The principal, practical and useful results that the borings have determined are, that on the proposed line of the tunnel the depth of the chalk on the English coast is 470 feet below high water, consisting of 175 feet of upper or white chalk and 295 feet of lower or grey chalk; and that on the French coast the depth of the chalk is 750 feet below high water, consisting of 270 feet of upper or white chalk, and 480 feet of lower or grey chalk; and that the position of the chalk on the bed of the channel, ascertained from the examination, nearly corresponds with that which the geological inquiry elicited.

"In respect to the execution of the work itself, we consider it proper to drive preliminary driftways or headings under the channel, the ventilation of which would be accomplished by some of the usual modes adopted in the best of coal mines.

"As respects the work itself, the tunnel might be of the ordinary form, and sufficiently large for two lines of railway, and to admit of being worked by locomotive engines, and artificial ventilation could be applied; or it might be deemed advisable, on subsequent consideration, to adopt two single lines of tunnel. The desirability of adopting other modes of traction may be left for future consideration."

This, then, is the great tunnel scheme, which a committee of promoters and engineers submitted to his Majesty the Emperor of the French in June, 1868; and we are informed "His Majesty was pleased to refer the matter to the favorable consideration of his Excellency the Minister of Public Works, who appointed a special commission to inquire into the subject in all its hearings." This special commission reported in March, 1869; and a summary of this report on the main question is contained in the following three resolutions, viz:

"I. The commission, after having considered the documents relative to the geology of the Straits, which agree in establishing the continuity, homogeneity, and regularity of level of the *grey chalk* between the two shores of the channel.

"Are of opinion that driving a submarine tunnel in the lower part of this chalk is an undertaking which presents reasonable chances of success.

"Nevertheless, they would not hide from themselves the fact, that its execution is subject to contingencies which may render success impossible.

"II. These contingencies may be included under two heads; either in meeting with ground particularly treacherous—a circumstance which the known character of the grey chalk renders improbable; or in an influx of water in a quantity too great to be mastered, and which might find its way in either by infiltration along the plane of the beds, or

through cracks crossing the body of the chalk.

"Apart from these contingencies, the work of excavation in a soft rock like grey chalk appears to be relatively easy and rapid; and the execution of a tunnel, under the conditions of the project, is but a matter of time and money.

"III. In the actual state of things, and the preparatory investigations being too incomplete to serve as a basis of calculation, the commission will not fix on any figure of expense or the probable time which the execution of the permanent works would require."

The Erie Railway.]

There are some public works, or combinations of public works, which have grown to such magnitude as to be of national importance and significance. We sometimes shrink from the contemplation of a great series of consolidated railways, with revenues such as exceed, or may exceed, that of a majority of the nationalities of the globe, controlled by a few men or a single hand. We have an undefined, or but partially defined, dread of the power they do or may exercise with the vast means at their disposal, and yet, on reflection, we can not deny that such consolidations, on the whole, are clearly in the public interest. Who does not remember the time when passengers between Albany and Buffalo had to change cars, exchange tickets, and wait for the transfer of baggage from one to the other of the half dozen little independent railways that existed between the two cities? And who, even now, in case arrangements for the purpose have been established between independent lines, does not bolt his breakfast or dinner, and get himself red in the face, in hurrying to the station half an hour ahead of time, in order to secure a place in the "through car"? What a relief there is in being able "to check your baggage through," let any traveler in Europe, compelled to register it four times between Venice and Naples, testify.

In this sense, if in no other, that gigantic combination of railroads and steamers known as "The Erie Railway," reaching from Boston to Cincinnati, and striking for San Francisco, is a great public benefaction. To originate and organize such a combination as the men controlling this vast work have effected, is evidence not alone of foresight and ability, but also of genius. If in doing it they have had conflicts with others endeavoring to profit by their indications or suggestions, or to deprive them of the results of their efforts, or to compete with them in other ways, we fail to see what reason or right the public, which is benefited, has to take part in the quarrel, or to become partisans of one set of enterprising men or the other.

The simple truth is, the consolidation of the petty, ill-managed roads that became the New York Central, we care not how brought about, whether legitimately or otherwise, was a great public benefit, second only to that far more comprehensive, efficient and more useful consolidation which has given us that extraordinary national work called the Erie Railway. The time may, and it seems is not unlikely soon to come, when its present inexpressive designation will be changed to that of the New York and San Francisco Railway. And the sooner that time comes, and the whole series of roads that intervene are brought into harmonious relation and action under a

single intelligent head, the better. So far as we can now see, this grand and useful result can only be reached through and by the Erie Railway, which it is, just now, the fashion to disparage and abuse.

As it stands, as we have already said, it is almost a national "institution." It reaches so far, and stretches so wide, and is so ramified with all our affairs, business and otherwise, that we can hardly fail to speak of it as we do of a department of the Government—we mean, of course, in the sense of its importance. We are constrained to look at the annual report of its officers, as we would to that of almost any of the departments at Washington. The report of its president, just published, certainly, in comprehensiveness, compactness and clearness, is almost as much a "Public Document" as that of the Treasury or General Post Office. In many essential respects, it certainly surpasses any that has gone before Congress this year, and in importance surpasses some of them.

One is almost staggered by the statistics which Mr. Gould presents, and especially by the enormous receipts of the consolidated road. In 1868, these, for passengers and freight, amounted to \$14,312,478; in 1869, to \$16,576,836—a gain in one year of \$2,263,348!

During the year, a great iron bridge, six hundred and fifty feet long, has been built over the Susquehanna River; four hundred miles of steel or steel-headed rails have been laid; a new ferry, with spacious and splendid boats, has been opened between "up-town" New York and the Eastern terminus of the road; a line of steamers, among the finest afloat, put on the Sound, to facilitate trade and travel with Boston; besides a line of twenty-two steamers on Lake Erie, connecting with all the commercial centres around the Great Lakes. This, and much more, in face of hostility from men defeated in aspiring to the control of the work, in despite of competition, fair or unfair, and in defiance of a fierce disparagement, wholly without foundation or excuse.

However they have done it, the one great fact remains—the present managers of the Erie Railway have extended and organized it on a scale benefiting the most important line of railway leading from New York, and make it the great *aorta* of the heart and metropolis of the Western World.—*Frank Leslie's Illustrated Newspaper* Feb. 12, 1870.

Finance and Trade.

Trade is gradually improving, the demand from the South, for many kinds of goods, having reached respectable proportions during the week, considering the early stage of the season. Manufacturing industry is also beginning to start up to meet the prospective wants of consumption, thus stimulating the demand for most of the leading raw materials. The prospects of a good spring trade appear to be gradually brightening, since it is now taken for granted that there is likely to be no Congressional action upon the currency, and tax question calculated to seriously interfere with mercantile calculations, while it is a pretty well ascertained fact that the interior markets are more than usually bare of goods. Superadded to these encouraging indications, we may add that the consuming power of the country has suffered little or no diminution, the high rate of taxation having been compensated by unusually large crops of all the great agricultural staples. The

purchasing power of the West, it is true, has been somewhat lessened by the unwonted depression of its principal staples; but it is to be remembered that it has a large surplus of the leading products of the soil yet to realize upon, while nothing has thus far occurred to seriously impair credits.

The South on the other hand, has rarely if ever been in a better position to take and pay for goods, owing to the general freedom of that section from debt, and the munificent returns for the leading staples. In fact, Southern traders are regarded as the best customers in our market, because they almost invariably make their appearance with hard cash, and have, in addition, the credit of their various crops behind them. This state of things is likely to continue for some time, for there is no reason to anticipate any material decline in the value of cotton, and it is more than probable that the proceeds of the crop this year will exceed those of any previous season. The great cotton crop of 1859-60, realized nearly \$260,000,000; if the estimate of two and three-quarter millions of bales for this season's yield prove correct, the South will draw for about \$300,000,000, and this, with the proceeds of the cane, naval stores, tobacco and other staples, can not fail to give a great impetus to the commerce of the country. In view of the facts thus hastily grouped, there is every reason to expect a good trade, in the event of no unforeseen influences of a disturbing nature. The money market tends to still greater ease, under the steady accumulation of currency from the interior, and mercantile paper is freely discounted at 7½ to 10 per cent. for double, and 10 to 15 for single names.—*N. Y. Commercial List*.

Strength of Metals.

An ingenious civil engineer of Marseilles has discovered a mode of using the force of rising and falling tides as a motive power, and he thinks that this new motor can be made serviceable at a great distance from the sea. The name of the discoverer is Ferdinand Tommasi.

The power of the moon's attraction has been used practically for a long time. The inhabitants of Long Island, while still colonists of Great Britain, ground their wheat and sawed their lumber by moon power. The ocean tide was suffered to fill mill ponds at flood, and the water so gathered was confined and used to drive undershot wheels after the tide had nearly ebbed. By this process, however, only an insignificant part of the tide power was employed. On every mile of ocean coast the power of the tide is sufficient to raise ten million tons a distance of ten feet twice every day. The tidal power exerted in Delaware Bay alone would more than suffice to drive all the machinery now in use in the world. The chief difficulty in applying tide water as a mechanical motor, is the want of strength in metals. If a cheap substance could be had of ten times the strength of steel this tide power could be gathered up and utilized. With such a metal, a spiral spring, weighing a few hundred pounds and wound up by the power of the tide, might be made to propel a railway car a hundred miles by means of a system of wheels like those which are driven by the main spring of a watch. While tidal power is in amount scarcely conceivable for its vastness, it is very slow in its vertical motion, the machinery by which it can be made directly available must there-

fore be of very great strength and dimensions. The utilizing of the tidal motor has long been a subject of study among mechanicians and inventors, but the insufficiency of the strength of metals has been constantly in the way of a successful result. The same want is experienced in almost every branch of mechanical invention or improvement. The discovery of some chemical means by which the strength of steel could, without additional cost, be doubled, would realize the dreams even of those who seek the means of useful aerial navigation, and it would result in the application of steam-water and electromagnetic power to very many new uses.—*Railroad and Traveler's Journal*.

WOODEN TOOTHPICKS.—Their manufacture is carried on by but one establishment, which has been in operation four years. It is near Boston, and employs thirty hands. The machinery has been patented, and is propelled by water power. The woods used are maple and willow. The sales are quite large, and amount at times to forty or fifty cases a day, each containing one hundred thousand toothpicks. The aggregate number sold, therefore, amounts in that period to four or five millions.

The total value of domestic produce and manufactures exported from Portland, Maine, in 1869, including lumber and cooperage, was \$1,666,944, of which \$869,707 were shipped in American vessels, and \$797,237 in foreign vessels. The gold value of all kinds of lumber transported into that district from Canada, for 1869, was \$311,612, of which all but \$75,000 were for exports to Cuba and South America.

Twenty years ago Pennsylvania was the largest wheat-producing State in the Union; now it is about the twelfth.

Railroad Items.

—The rumored resignation of Rucker, General Superintendent of the Erie Railroad, is officially denied by Fisk.

—A bill was introduced in the New Jersey Senate, March 1, looking to a new railroad route between New York and Philadelphia.

—The bill to grant the right of way to the Cincinnati Southern Railway, through the State of Kentucky, was defeated in the Kentucky Senate, March 1, by a vote of 22 to 13.

—A new railroad enterprise, with the title of Mahopac & Boston Railroad, is projected, starting at Croton, on the Hudson River, and connecting at Brewster's station with the Boston, Hartford & Erie, Harlem and other roads.

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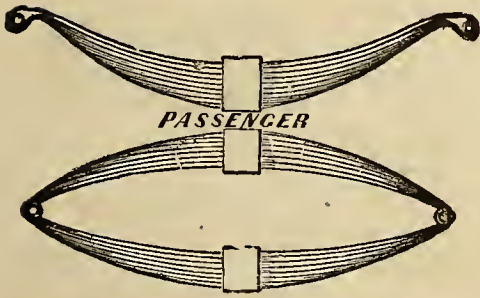
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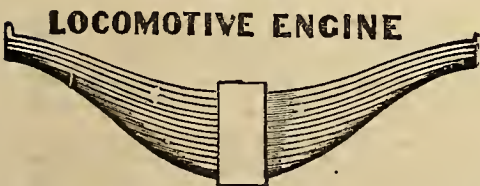
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Also, at the Engineer's office at Richmond, Va., until 12 M. March 10, 1870, for several heavy sections east of the Falls of Kanawha, including the unfinished work near Millboro', and that eight miles east of the White Sulphur Springs the Great Bend tunnel, 6,100 feet; Lewis tunnel, 3,800 feet; five other tunnels from 500 to 1,700 feet long; several sections in rock cutting; and about 70,000 cubic yards of masonry.

Profiles and specifications can be found at the office of the company) 54 William street, New York, on and after February 1; at Richmond, Va. and at Charleston, W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia
C. P. HUNTINGTON,
President.

27-1-70, 4.

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Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

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North west and South-west.

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	Leave.	Arrive.
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St. Louis and Springfield Express....	2.40 pm	7.35 am
*St. Louis and Springfield Express.....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.30 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

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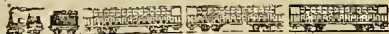
	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima, Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do	6:50 A. M.	

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	LEAVE.	ARRIVE.
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Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

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8.30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.
3.30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4.30 p. m.—For Somerville.
5.25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7.20 p. m.—EMIGRANT—Stopping only at the principal stations.
9.00 p. m.—For Plainfield.
11.50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Care to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie, &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MARCH 10, 1870

The Railroad Record,

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Cincinnati Southern Railway.

REMARKS

OF

HON. THOMAS WRIGHTSON,

IN THE

Senate of Kentucky, Feb. 26, 1870.

ASSERTIONS ARE NOT FACTS

MR. SPEAKER: It is with considerable diffidence that I arise to address this honorable body, after this subject has been discussed by such distinguished and able counsel. I should not do so were it not that the bill under consideration is of great, I might say vital, importance to the people of my district, and it is one in which not only one-third of the people of this Commonwealth are directly interested, but, sir, it assumes much larger proportions. It is a national measure. A measure in which the interests of at least one-fourth of our whole country is involved. It is not the offspring of a moment, or the result of temporary excitement. It has been the theme and hope of some of the ablest minds of half a dozen States for the past thirty-five years. It is scarcely necessary for me to say that in 1836 this subject was considered of sufficient importance to call together a very large number of delegates (between three and four hundred), at the city of Knoxville, Tennessee (there were but six from Ohio, and sixty from Kentucky), and it has continued to occupy the public mind from that day to this.

Last summer, sir, I had the pleasure, my-

self, of meeting with distinguished representative gentlemen from a large number of the counties embraced in the area through which it is proposed to construct this road; besides, I also met with representatives from North and South Carolina, from Georgia, from Alabama, from Florida, from Mississippi and Tennessee. The Governors of two or three States, sir, considered it of sufficient importance to induce them to momentarily throw aside their robes of State, and in a representative capacity to visit the city that now proposes to construct this much-desired, long-asked-for, and important work. Indeed, no less urgent were they for its construction, nor cordial in their terms of welcome, than were the delegates of our own State. It was hailed as a "sweet harbinger of peace," a "bond of union," and a promoter of "the general welfare."

The whispering voice of the people of Central Kentucky is just beginning to be heard in response to the rumor that has gone forth that the overshadowing influence of a powerful railroad corporation, and the concentrated vote of the representatives of the "first city of the State," are likely to delay, if not defeat, the passage of the measure. These whisperings are but the earnest of what will be heard in thunder tones if the desires and interests of the great, rich, and populous center shall be set aside and disregarded. It is a singular fact that but little of active opposition to any "fair bill" has been uttered or entertained except that coming from the city of Louisville, and engendered by the opposition of the Louisville & Nashville Railroad. Its tracings can be readily followed. This question is one not of party politics, but interest; and the people will not omit to settle accounts with those who fail to meet their expectations of duty. I have great confidence, sir, in the intelligence and integrity of the people, and in the ability of their representatives to understand the sound of their voice—the *vox populi*! Hence it is, that I have never doubted for a moment the passage of this measure, when divested of objectionable features.

At the outset of this session it was generally conceded, by nearly every member on this floor, that they were in favor of a "fair bill," free from constitutional and legal difficulties, and that did not destroy "vested rights."

As originally presented, there were some features that were by many regarded as obnoxious in this bill, although in others they have passed this Legislature without scrutiny. These, sir, if I correctly understand the character of the objections, have been entirely removed by the free consent of the memorialists. There has been, however, one or two points on which a doubt may hang, developed in the discussion hitherto had before the joint committee, to which I desire to call the attention of the members of this honorable body.

We will first consider the assertion that never were

CORPORATE POWERS GRANTED TO OTHER THAN CITIZENS OF KENTUCKY.

In the recent discussion before the joint committee of the two Houses, Mr. Caldwell is reported as saying:

"They come to Kentucky and demand of the Legislature of the State, of which I am proud to be an humble citizen, grants of great powers, such as this Legislature has never given any man or set of men on the face of God's earth."

"I had asserted that such powers had never been granted by any free and enlightened people to non-residents. I demanded and challenged an instance worthy of the consideration and confidence of this committee as a precedent. I challenged the action of any sovereign power that you could respect and treat as a power worthy to be followed by you. I cited you to all the past history of this country, and there to produce a parallel case."

It is not denied that Tennessee has passed an act in character similar to the one under discussion, and intended to aid in the construction of this "Cincinnati Southern Railway;" but then the answer would be "poor, maimed, manacled, bound, whipped, humbled Tennessee."

But let us see once what has been the conduct of "ever free, noble, generous, gallant Kentucky!" Let us read from chapter 775, page 426, of Laws of Kentucky, 1859-60, "An act to incorporate the Mississippi River Railway Company, approved February 28th, 1860."

The act reads:

"WHEREAS, The General Assembly of the State of Tennessee, on the 29th January, 1858, and at the first session of the thirty-second General Assembly of said State, for the years 1857-58, passed an act, entitled 'An act to charter the Greenville and North Carolina Railroad Company, to amend the charter of the Eagleville, Unionville, and Shelbyville Turnpike Company, and for other purposes;' and whereas, a portion of said act constitutes John S. Stanton, Thomas L. Sullivan, John D. Williams, William B. Ferguson, and Jesse Moore, of Shelby county, Tennessee; and John T. Fields and William G. Fields, of Dyer county, Tennessee, a body corporate, under the name and style of the 'Mississippi River Railway Company;' and whereas, said Mississippi River Railway Company is empowered to operate under their said incorporation, within the limits of Kentucky, only and with the concurrence of the General Assembly of Kentucky; therefore,

§ 1. Be it enacted by the General Assembly of the Commonwealth of Kentucky, That the said act of the General Assembly of Tennessee, so far as it relates to the said 'Mississippi River Railway Company,' be, and the same is hereby, concurred in, and re-enacted in all its sections and details (except as hereinafter provided for), so far as the said railway company, in said act of incorporation, propose to construct their road and operate within the limits of this State; said company shall possess all the powers and privileges, and be subject to all the limitations, liabilities, and responsibilities within this State, which are now or may hereafter be prescribed by the laws of Kentucky; and which are prescribed by said act of incorporation, in reference to their operation within the State of Tennessee: *Provided, however,* That this General Assembly does not concur in, but rejects the 50th, 51st, 52d, 53d, 54th, 55th, 56th, and 57th sections of said act; as those sections are numbered in the act as it appears in the published private acts of the General Assembly of Tennessee, at the aforesaid first session of the thirty-second General Assembly of that State.

§ 2. That the 38th, 39th, 40th, 41st, 42d, and 43d sections of an act of the General Assembly of Kentucky, entitled 'An act to incorporate the Licking and Lexington Railroad Company, and Louisville and Frankfort Railroad Company,' approved March 1, 1847, so far as the same are applicable to the object and intent of the incorporation of said Mississippi River Railway Company, are hereby adopted and enacted as a part of this act; and all the powers and privileges granted, and the restrictions and liabilities imposed in said sections upon the said Licking and Lexington, and Louisville and Frankfort Railroad Companies, are hereby granted to and imposed upon the Mississippi River Railway Company, so far as it operates within the limits of the State of Kentucky:

Provided, however, That the said last named company shall not construct their road within Kentucky of greater width than, by said act of the General Assembly of Tennessee, they are authorized to do within the limits of the State of Tennessee: *And provided further,* That said company shall not make their road of greater width, in any town or city through which it may pass, than may be necessary for the turnouts, tracks, or rails upon which their cars may run in said city or town."

A few other minor sections follow; but this is enough to quote to see the intent and purpose of the act.

It is a flat contradiction of the position assumed, and scarcely needs one word of comment. Not a single one of the corporators but are "foreigners." But that is not all. If you carefully note the reading of the act just quoted, it will be observed that the Tennessee act, with all its "powers, privileges and franchises," "so far as it relates to the said 'Mississippi River Railway Company,' be, and the same is hereby, concurred in, and re-enacted in all its sections and details;" but not content with that, in the generosity of their hearts, the Legislature of Kentucky granted—Section 2. That the 38th, 39th, 40th, 41st, 42d and 43d sections of an act of the General Assembly of Kentucky, entitled 'An act to incorporate the Licking and Lexington Railroad Company, and Louisville and Frankfort Railroad Company,' are hereby adopted as a part of this act."

Here then, sir, we have a foreign corporation, blessed with the "powers, privileges and franchises" of two sovereign States.

In the laws of 1849-50, chapter 325, page 354, we find the following: "An act to incorporate the Nashville and Louisville Railroad Company. *Be it enacted by the General Assembly of the Commonwealth of Kentucky,* That an act, entitled 'An act to incorporate the Nashville and Louisville Railroad Company,' passed by the Legislature of the State of Tennessee, on the 9th day of February, 1850, and in the words and figures following, viz.:

"§ 1. *Be it enacted by the General Assembly of the State of Tennessee,*" etc. I will not quote the entire act.

It would rightfully be contended that a portion of the corporators in this case were citizens of Kentucky. This is true; but if we consult section 24 of this act, it will be seen that, after the first election, this would not necessarily be the case. The section reads:

"§ 24. No person but a citizen of the United States, and being a *bona fide* stockholder, in his own right, of at least twenty shares, which he shall have held at least three months previous to his election (except at the first election), shall be President or a Director of the general Board."

Section 17 fixes the "exclusive right" to transport passengers and goods at the following rates, viz: "Shall not exceed thirty-five cents per one hundred pounds on heavy articles, and ten cents per cubic foot on articles of measurement for every hundred miles, and five cents a mile for every passenger: *And provided, also,* That the said company may, when they see fit, farm out their rights of transportation on the said road, or any of

its branches, subject to the rates above mentioned."

This right to "farm out" is precisely what the trustees in the bill before us propose to do.

Section 28 furnishes a sliding scale for voting the stock.

"Section 34" grants "all lands not heretofore granted to any person, not appropriated by law to the use of the State, within one hundred feet of the center of said road, or its branches, which may be constructed by said company, shall vest in the company so soon as the line is definitely laid out through it; and any grant thereafter shall be void."

This grants the "right of way" "two hundred feet wide" through the lands of the State. It is strange that this was not considered dangerous to the sovereignty of the State, at that time. No, sir, it is a modern invention, got up for the present occasion only.

Section 50 provides, that "this charter shall, from time to time, be amended by the Legislatures of the States of Tennessee and Kentucky, whenever the President and Directors shall *unanimously petition* for amendments," etc; while the closing clause of the Kentucky portion of the act says, "he, and the same is hereby adopted and re-enacted," etc.; and closes with a provision for city, town and county subscriptions.

Chapter 419, page 80, volume 2, Laws of 1865-6, contains the following: "An act to incorporate the Nashville & North-western Railroad Company." The first section reads:

"§ 1. *Be it enacted by the General Assembly of the Commonwealth of Kentucky.* That an act to incorporate the Nashville and North-western Railroad Company, passed by the Legislature of the State of Tennessee, on the 22d day of January, 1852, together with the several amendments thereto, made by the said Legislature of Tennessee, passed February 28, 1852, and February 15, 1854, in the words and figures as follows, to-wit."

Here follow the acts and amendments, which we do not propose to quote to consume the time of members, but will merely refer to the second section of the act, to show that the corporators therein named are, every one of them, citizens of Tennessee; neither is there any provision in the act requiring any director or officer, or even stockholder, to be a citizen of Kentucky. In addition, sir, it is provided, in section 36, "the capital stock of said company shall be *forever* exempt from taxation, and the road, and all its fixtures and appurtenances, including work-shops, warehouses, and vehicles of transportation, shall be exempt from taxation for the period of twenty years from the completion of the road, and no longer."

The close of section 1 of the Kentucky act, which embraces the Tennessee act and all the amendments, reads:

"Be, and the same are hereby, re-enacted and adopted, with all the privileges, franchises, powers, and responsibilities conferred and granted by said charter, so far as the same are applicable and not inconsistent with the Constitution of Kentucky, to enable the said Nashville and Northwestern company to continue their line of railway to the city of Hickman, in Fulton county, Kentucky."

"§ 2. This act to take effect from its passage."

It seems to me that it is unnecessary to pile up any further evidence on this point. I will give but one or two more, and then pass on to some other division of the subject.

Let me cite you to chapter 455, page 552, of volume 1, Laws of 1867-8. It is as follows: "An act to amend an act, entitled 'An act to incorporate the Nashville and North-western Railroad Company,' approved March 8, 1856:

"§ 1. *Be it enacted by the General Assembly of the Commonwealth of Kentucky.* That the act approved March 8, 1856, entitled 'An act to incorporate the Nashville and Northwestern Railroad Company,' be, and the same is hereby, re-enacted, with all the rights, privileges, and immunities conferred on said company by said act.

"§ 2. That the statutory lien reserved by the State of Tennessee, for the security of the bonds of said State, heretofore or hereafter to be issued to said Nashville and Northwestern Railroad Company, and the accruing interest on the road-bed, right of way, grading, bridges, and masonry, upon all the uncollected stock subscribed to such road, and upon the iron rails, chairs, spikes and equipments, and on the whole road superstructure, equipments, and rolling stock, as far as completed or acquired, and upon all the property owned by the company, or incident to, or necessary for its business, as well as such property and effects hereafter acquired as the property and effects of a road now and possessed, be, and the same is hereby, extended to the property of said company in the State of Kentucky, or which may hereafter be brought into this State; and the State of Tennessee may enforce its said lien at any time on said property and effects, by proper proceedings in the courts of this State, without security, except for costs, and have the same delivered up to it, whether the road is still run by the Nashville and Northwestern Railroad Company, and the affairs of the company managed by said company or by the State, or some receiver or other officer appointed by the State authorities, or the courts of Tennessee."

It seems to me that we might stop right here, and not say another word. The act "speaks for itself," and were I to talk all day I could not make it plainer. I confess I am in the fix of the profane old man, who, when going up hill, lost the tail board out of his sand-cart, and will have to adopt his language: "It's no use, gentlemen, I can't do justice to the subject." Mr. C. said: "I challenged the action of any sovereign power that you could respect and treat as a power worthy to be followed by you. I cited you to all the past history of this country, and there to produce a parallel case." Will the gentleman respect the action of Kentucky? Can we respect it? Will he allow us to respect it? I could cite other instances from the laws of Georgia, from Tennessee, or other States; but if we can not respect these, "neither would ye, though one rose from the dead." Can it be possible that Mr. C. made this idle challenge through ignorance, or did he presume on your ignorance of the history of the legislation of the State; or was it to excite and receive the applause of the galleries? I leave it, sir, with you and this Senate to decide. On this floor we can deal only with facts.

The law further says:

"§ 3. That this act shall be, and enure, as a statutory lien in the State of Kentucky, without either registration or record, upon all the property and effects of every nature and kind now owned, or which hereafter may be acquired by said Nashville and Northwestern Railroad Company, in favor of the State of Tennessee, for the security of its bonds issued to the said company, or in aid thereof, and of the interest accruing thereon."

"§ 4. Nothing contained in this act shall be construed so as to defeat any *bona fide* lien now held by any citizen of the State of Kentucky on that part of the Nashville and Northwestern Railroad, road-beds, right of way, grading, bridges and masonry, situate, lying, and being within the territorial limits of the State of Kentucky, except so far as the same may be enhanced in value by bonds hereafter issued to said company by the State of Tennessee."

"§ 5. This act to take effect from and after its passage."

That there is justly a comity between the States for commercial purposes, has ever been recognized by Kentucky. This is not only fully illustrated by the foregoing, but is again reiterated by the act approved March 4th, 1850, entitled "An act to amend and re-enact an act, entitled 'An act to incorporate the Henderson and Nashville Railroad Company,' approved February 8, 1837." Laws of 1849-50, chapter 275, section 53 of said act, page 322 says: "And whereas, the Legislature of the State of Tennessee, on the 15th November, 1849, passed an act, entitled," etc., here repeating the title as above quoted, "of which act of the Legislature of Tennessee this is a copy." Further on, in the same section, it reads, "the intention of the Legislature of Kentucky being to concur, by the foregoing enactments, fully and entirely with the enactments of the Legislature of Tennessee."

It will, of course, again be objected that this is not a parallel case to the application of the Trustees of the Cincinnati Southern Railway, as a portion of the incorporators are citizens of Kentucky. The reply to this is precisely the same that we have given to the preceding—that a section is introduced in the act which regulates this matter. Let us read section 24: "No person but a citizen of the United States, and being a *bona fide* stockholder," etc., "shall be President or Director." Here it will be seen that citizenship of the United States is recognized again, and actual ownership of an interest in the property as the only qualifications necessary to enable them to own and control a corporate interest in the State of Kentucky.

This act also contains a like section for the donation of State lands, as has been cited above, together with a provision in reference to the equitable terms for connecting branches or roads.

PROPERTY EXEMPT FROM TAXATION.

"§ 40. That the capital stock in the said company the dividends thereon, and the road and its fixtures, depots, work shops, warehouses, and vehicles of transportation belonging to the said company, shall be forever exempt from taxation in each and every of the said States of Tennessee and Kentucky; and it shall not be lawful for either of the said States, or any corporate or municipal police, or other authority thereof, or of any town, city, county, or district thereof, to impose any tax on any such stock or dividends, property or estate." Then follows a *proviso*, that if the dividends shall exceed six per cent., the same "may be subject to taxation by the State, in common with and at the same rate as money at interest, or interest thereon."

This might, perhaps, be justly classed with "extraordinary privileges," the like of which are obtained by but very few corporations.

I think I have already given enough quotations from the laws of this State to show that it is not a new custom to grant franchises to parties who are not residents of this State; but for fear I have not, I will refer to one more case, viz.: the "Eastern Kentucky Railroad"—passed during the present session of the Legislature; and, if I recollect aright, passed through the Senate without reading, except by the title, and on the recommendation of the Chairman of the Committee on Railroads.

EMINENT DOMAIN.

The precedent is clearly established of charters being granted to parties not citizens of the State; or that may so become the property of those other than citizens of the State; and even if we had not so established, nearly all roads are mortgaged, and no one will deny, that if the roads should fail to meet their bonded obligations, they would have to be sold, and would then become the property of the purchasers, be they citizens of Kentucky or otherwise. Hence, the arguments about "eminent domain," and parting with the "sovereignty of the State," and "a part of the sovereignty of Kentucky," and that "when you expressly grant the power, you thereby delegate to the artificial person so created a branch of the sovereign power," and "the power which I warn you against granting is that proposed in the bill before you—a power to a foreign, close corporation, to traverse your State from her most northern to her most southern border, clothed with the right, by your grant, to exercise the right of eminent domain over and upon the lands of your people, with the power of the law to enforce its demands," is all nothing but mere twaddle and buggaboo. How much more of its "eminent domain" would the State of Kentucky lose by the granting of the asked for franchise, than if the same franchise, or any one of the innumerable other charters granted by the State to citizens of the State, and a road having been constructed thereby and thereon, and then by the mortgage lien the property should pass into the hands of "a foreign, close corporation?" Or, if a franchise, by the ordinary method of bargain and sale, and nearly all charters contain provisions enabling them to sell, or what is the same, "consolidate," should become the property of foreign trustees—these "same five trustees—a franchise with no limitations or restrictions whatever, except that they pass by some favored spot, some particular town, some salt works, or Mammoth Cave, and with all the powers and privileges that experienced politicians and shrewd lawyers can devise, in what respect would it differ in the loss of "sovereignty" or the surrender of "eminent domain," with the bill before us? Why, sir, there has been a score or so of charters kindly offered me, by gentlemen who supposed that I had some means of controlling these trustees.

OTHER OBJECTIONS.

Upon these *two* "hang all the law and the prophets." There are, of course, other minor objections raised, but none that are radical. With the amendments presented to the bill, the question of the constitutionality of the Ohio (or Ferguson) Act, is certainly of no moment to us, as the right and power to make subscriptions to the bonds has been stricken out, thus forcing the trustees to seek

a market other than that of Kentucky for them. We will therefore make no further allusion to them, or the constitutional question. The right of cities, towns, counties, and parts of counties, to make *donations*, is not affected by the constitutionality of the Ohio law, under which it is proposed to construct the road, and would give to the citizens of Kentucky that opportunity of aiding in its construction to the extent and in the manner that their delegations have so frequently offered, and for which standing offers are so temptingly made by members of the Legislature, conditioned only that it pass by "their corn-cribs." Yet, nevertheless, even this was not a *sine qua non*, and, at the instance of the trustees, has been stricken out, without at all damaging the harmony and perfection of the franchise. Notwithstanding, this method of granting aid has received many indorsements by the Kentucky Legislature.

One case in point, and I will quote no more on this subject. Chapter 1135, Laws of 1867-8, volume 2, page 514, we find "An act to amend an act, entitled 'An act to incorporate the Cincinnati, Covington and Cumberland Gap Railroad Company,' and approved March 9, 1868. Section 2 provides "that the county courts of counties through which the road named in this, and the act to which this is an amendment, runs, shall have full power and authority to donate to said company as a *bonus*, to induce capitalists to make the same, all lands lying within their respective counties and which belong to the same; and also to *donate* for said purpose any lands which may hereafter accrue to and become the property of said counties by virtue of any law of this county, or otherwise."

This is not all. It is further provided, in section 3, "that the incorporators of said company named in the first Section of the act to which this is an amendment, or such of them as shall, at their own expense and trouble, procure *bonuses* such as are named in the thirty-fifth section of the act to which this is an amendment, may retain, as compensation for their services, such part of the *bonus* obtained by them, respectively, as may not be required to induce capitalists to take stock therein sufficient to build the same, not exceeding ten per cent. of the money bonuses, and ten per cent. of the land bonuses so obtained."

Section 5 empowers the company to "branch their road from such point as shall be by them deemed most convenient, to make a road by the shortest route from Cincinnati to Knoxville or Chattanooga;" yet, with all these liberal grants and stimulants, the road is not made; it is not begun.

In addition, let me remark, that, to meet this spirit of liberal legislation, the merchants of Cincinnati did subscribe one million of dollars to aid any company in the construction of such a road—not as stock, but as *gift*

—*a bonus*. But the company—this Kentucky company—organized under our own laws, with all the aid above secured, failed to make the “rifles,” and not a mile of road is built, nor a shovel-full of earth removed. The grand old mountains of Kentucky are yet undisturbed by the grading and blasting party, and the wild cats and wolves are not frightened from their lairs by the screech of the locomotive.

The latitude asked for the selection of the route is another difficulty. Chapter 1875, Laws of 1867, vol. 2, p. 401, we find the following: “An act to incorporate the Cincinnati, Lexington and East Tennessee Railroad Company,” approved March 9, 1867. The first section of this act allows the company to construct their railroad “to any point they may select on the southern boundary line of Kentucky, and connect with any railway from that direction, and to extend their line of railway from Lexington, through Scott and Grant counties, to the Ohio river,” with a “branch or branches in any direction, and from any point or points on said route or line of road, south of Lexington, they may think proper, provided the construction of such branch does not materially impair the vested rights of other corporations, and no branch is over twenty-five miles long.” This incidentally disposes of another of the serious difficulties, viz: the wonderful margin from which to select the route. This is also fully met by the case in laws of 1850-1, chapter 505, entitled “An act to amend the charter of the Louisville & Nashville Railroad,” in which the law says, section 2, “That said company shall have power and authority to reconstruct their road from the city of Louisville to any point or place in the *direction to Nashville*, Tennessee, and to connect the same with any railroad extending to Nashville, on such terms and conditions as the two companies may, from time to time, agree on, for the through transportation and travel of freight and passengers; and said company shall have the same power and authority to construct a branch of said road to the Mississippi river, and any other branch said company may desire, that the charter gives them to construct the main line, and with the same rights and privileges, and with the same duties and restrictions.”

It will be observed that no county in the State is exempt from the authority and encroachments of this company, if it so “desires.”

There is one other little objection that we will meet while we have this charter before us: that is the width of the right of way proposed to be acquired. This same amendment to the charter of the Louisville and Nashville Railroad, and same section, also provides that the company “may, for the main line and branches, acquire, as provided in the charter and by this amendment,

the right of way *one hundred and fifty feet wide, or more, if necessary*; and the quantity of acres of land which they are authorized by the charter to acquire and hold, shall be exclusive of the right of way of the road and branches.”

The right of way “*one hundred and fifty feet wide, or more, if necessary*,” is certainly enough.

It seems to me, sir, that we have now fairly, squarely, and unanswerably met every objection that reason can suggest, and any objection based on other grounds should not, for a moment, be entertained by this or any other deliberative body. On the hustings we may apologize for an appeal to passion or prejudice, but in a body like this we can not.

The constitutionality of the Ohio law is not now a concern of ours; the question of eminent domain we have shown to be sophistry; the legal difficulty in reference to the *right of the majority to tax the minority* to make subscriptions and donations is removed, although it was not objected to, but fully concurred in, in some five or six other charters passed this session; the precedent of granting charters to persons other than citizens, instead of being an anomaly, runs through the legislation of the State; and jurisdiction over the property in the State, to the State courts, is as fully guaranteed as language can make it. What more can be required? What fairer propositions offered?

I certainly think, sir, it merits the approbatory remark bestowed by the Chairman of the Railroad Committee the other day when the Senate passed, without reading, except by the title, the bill to incorporate the “Louisville, Memphis, and New Orleans Railroad: “This is nothing but an ordinary charter, sir, with no extraordinary provisions or privileges.” But, then, the Chairman of the Committee is the first named corporator in this bill, and the road has to run to, and break bulk in, Louisville; and, sir, it makes a *difference* when you find out whose “ox was gored.”

Aye, but it is said, these Cincinnati trustees not only reside *out* of the State, but they are *in* for life, or what is the same, during good behavior. We think we have clearly demonstrated before, that all the roads of the State are *liable*, so far as any provisions of their charters are concerned, to get into just exactly this position. We have at least *one* forcible illustration in the Kentucky Central Railroad. It is well known that the controlling interest in this property belongs to the estate of the late R. B. Bowler. I can not, for the life of me, see the strength of an argument against granting this charter, hung on such a “rope of sand.”

Besides, shall we ignore the wishes of this great belt of country through which the road may be constructed? Why, sir, there are more people living on this route than there are in Louisville and Cincinnati combined!

Have they no rights? Shall they have nothing to say in this matter? Why, sir, they compose nearly one third the people of the State. Covington and Newport combined are nearly half as large as Louisville; and if they are not stunted by unfriendly legislation, Louisville will have to look out for her laurels, or they will beat her in the race for supremacy.

I might give you a history of the railroad era, from the days of George Stephenson and his “Blucher,” in 1814, and in our own country of the “DeWitt Clinton,” in 1831, the “first steam train in America,” a photograph of which is hung upon the wall (I have seen the original), down to the present time, with our 50,000 miles of railway, stretching from ocean to ocean, forming a network on the map of our country. Of our whole land, Central Kentucky the “garden of the earth,” alone remains a “railroad desert”—a *terra incognita* to this evidence and element of progress. Certainly it is not for the lack of charters, for it is covered all over with them.

We have this winter chequered the map afresh with imaginary railroads, clothed with abundant power to tax and to take the property of citizens. Should they all be built, sir, we should not have too many railroads, notwithstanding they would cost in the neighborhood of two hundred millions of dollars! Where will the money come from? But we need not fear; very few of them will ever appear except on paper. Why, sir, the Legislature of Kentucky has been proverbially liberal in granting charters, especially where there was no earthly hope of raising the money for their construction, and I doubt not the practice of this session will be found to constitute no exception to this “time honored rule.”

WILL IT BE ANY ADVANTAGE TO KENTUCKY?

Mr. Caldwell, in his argument, says:

“If, in the course of this argument, I have said aught calculated to retard the progress and growth of Kentucky, or any part of her borders, then I shall wish that I had not appeared here at all; but I don't believe that this bill is calculated to redound to the interest of any portion of Kentucky.”

This is said, as it were, by way of apology, apparently in response to the kindly suggestions of some old friends, and possibly to keep the way clear with a personal reference to the future. But Mr. C. presented you no facts. It is merely, “I don't believe.” The day has passed for that class of argument to have much weight. Not only legislators, but an intelligent, enlightened, and newspaper-reading constituency, want the facts and figures to accompany all broad and bold assertions. It is very easy to assert anything; and, indeed, it is a common method, with some orators, to make use only of this style of argument, presuming on the ignorance of their auditory. They are like the old darky preacher, when, after pounding and expounding, and emitting

a large amount of wind and noise in his efforts to elucidate the text, "Thou art an oyster man;" and in the course of his remarks representing the wonderful benevolence of God in being willing to make use of ministers as the tongs to lift poor sinners—the oysters—from the ocean of sin, and save them; and when, at the close of his discourse, one of his hearers gently intimated to him that he had made a mistake, that the text did not read "Thou art an oyster man," but "Thou art an austere man," replied, "Never mind, brother, it don't make a hit of difference; we had a first rate time, anyhow!"

It was a presumption that would scarcely "pass muster" at a ward meeting, and an insult to the intelligence of his audience, to assert that the construction of any railroad is not "calculated to redound to the interest of any portion of Kentucky," or any portion of the Almighty's footstool.

What are the facts? These are very clearly and succinctly furnished us by an article in the RAILROAD RECORD and based on the statistics of the report of our State Auditor. The Editor says:

"How far on each side does the influence of a railroad extend, and what is the amount of that influence in increasing the taxable values of landed estate? We presume that it will not be denied that this influence will be felt to the same extent in Kentucky as in other States, and to the same amount. It is conceded that all lands within twenty miles of a great trunk railway are affected by it, and that it is a low estimate to quote twenty five per cent. as the average increased value of the territory embraced within the limits named.

"This basis being correct, to what extent will it affect the interests of the Commonwealth? A good map will show the reader, if he will take the trouble to stick a pin in it at Cincinnati, and attach a string to the pin, and draw an *air* line to Chautanooga, that the following counties and parts of counties will come within the space of twenty miles on each side of the string. The valuations are of farm lands only, exclusive of town lots, and taken from the elaborate report of D. Howard Smith, Esq., the State Auditor:

Kenton.....	\$3,413,515
Boone.....	3,706,049
Gallatin.....	1,200,043
Grant.....	2,042,052
Owen.....	2,052,560
$\frac{1}{2}$ Henry.....	949,537
Franklin.....	2,401,583
$\frac{1}{4}$ Shelby.....	1,613,344
Woodford.....	4,193,690
Anderson.....	1,080,170
Mercer.....	3,103,336
Boyle.....	2,506,525
$\frac{1}{2}$ Washington.....	1,286,557
$\frac{1}{2}$ Marion.....	958,628
$\frac{1}{2}$ Taylor.....	407,387
Casey.....	986,883
Russell.....	586,914
$\frac{1}{4}$ Adair.....	711,826
Clinton.....	626,630
$\frac{1}{4}$ Cumberland.....	651,939
Campbell.....	3,217,987
Pendleton.....	2,131,735
$\frac{1}{4}$ Harrison.....	3,558,675
Scott.....	4,971,215
Fayette.....	7,879,223
Jessamine.....	2,911,775
Garrard.....	2,665,600
Liacoln.....	3,073,939
Pulaski.....	1,507,217
Wayne.....	983,071
Total.....	\$67,468,666

"From the above it will be seen that the total taxable farm lands of thirty counties and

parts of counties are to be affected by the construction of this road, having an aggregate valuation for taxable purposes of \$67,468,666, or thirty-one per cent. of the entire assessment of farm lands for the State. Twenty-five per cent. of this would be \$16,867,166. This is exclusive of town lots, which amount to nearly an equal sum, and of the amount to be expended in construction and equipment, which would also be subject to taxation."

This will make a clear addition to the taxable value of real estate, and from which State revenue is obtained, of not less than forty million dollars! This is an argument based on facts that can not be controverted. The history, not only of our country, but the world, has demonstrated it. It is no appeal to prejudice that will last for but a moment and excite the applause of the galleries, but it is an argument on which the statesman and conscientious legislator can face his people and ask for an indorsement of his conduct.

This is the view taken on this subject, and openly avowed, by Mr. Withrow, the intelligent and able chief clerk in the office of the State Auditor, who is perhaps as familiar with the statistics of the State as any other person. Indeed, he deems the above estimate of increased taxable value of forty millions as rather under than over what will be the actual result. Therefore, we argue that this bill should pass, denuded as it has been of every objectionable feature, and clothed with every garb of fairness and equity, without our adding to it any hurdens that no similar enterprise on the face of the earth is asked to bear, and which no road can assume and exist.

I claim, sir, for this measure, the votes of gentlemen who, in the early part of the session, unreservedly proclaimed that they would be in favor of, or should not oppose, a "fair bill." I claim for it the votes of these gentlemen—even the Senators from Louisville!

ROAD ENGINE.—A Mr. Owen Redmond, of Rochester, New York, has built a road engine which weighs but two tons, with water and boiler, and is able to draw three plows. The traction wheels have tires eight inches wide, with apertures through which blades are forced into the earth and draw back again before they would resist the progress of the wheel.

Coal has been found in the bed of the Mississippi, seven miles above Davenport. It is said to be very light, resembling cannon coal, quite clear, and burns with a light flame, giving out but little smoke or soot. The vein is six feet in thickness, and is remarkably free from slate and dirt.

The total debt of the State of Maryland, Sept. 30, 1869, is reported at \$12,692,938 96, with stocks, etc., on hand, of the value of \$7,228,413 22; making a balance of debt not provided for of \$5,464,525 74.

There were 500 buildings erected in St. Paul last year, 351 of which were dwellings, 42 houses for business, besides churches, school houses, etc.

The total outstanding bonded debt of Missouri, Jan. 1, 1870, is reported at \$21,594,000.

New York State Canals.

The Report of the State Engineer and Surveyor of New York, Van R. Richmond, Esq., shows the total length of navigable canals and feeders in that State, with rivers and lakes connected artificially therewith, to be 1,228 miles; the number of locks is 565, and the total feet of lockage is 5,286. The following is given as the

Total cost of construction of the State Canals.....	\$64,710,832
Total interest on the same.....	93,736,654
Total cost of maintenance, repairs and collection	24,377,114
Total interest on the same	27,263,895

Total from commencement to completion	\$210,093,495
Aggregate receipts from tolls with interest thereon.....	202,619,510

Present cost to the State of the entire canal system	\$7,473,985
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A comparative statement of the total tonnage movement over the New York State Canals, New York Central Railroad and the Erie Railway, together with the receipts per ton, per mile, on each, from 1859 to 1868, inclusive, shows the following result:

New York Canals.....	9,094,948,812
New York Central Railroad.....	2,841,450,629
Erie Railway	3,801,468,983

It appears from the foregoing that the Canals, since 1859, have moved about 40 per cent more freight than the New York Central and Erie Railroads. As between the two railroad lines, the foregoing is not a fair comparison, as the Erie operates 201 more miles in 1868 than in 1859, while the New York Central operates only 37 miles more.

The following shows the cost of construction and equipment of the three lines:

		Total l'gth
N Y. State Canals....	\$80,710,832	900 m.
N Y. Cen. Railroad...	36,607,696	593 m.
Erie Railway.....	56,486,605	773 m.
		\$173,805,133 2,266 m.

The total number of tons moved one mile on all the Railroads in the State, in 1867, was 1,192,818,673; in 1868, the number was 1,308,451,978, an increase of 115,633,305, or 9½ per cent., while the increase on the Canals for the same period was 7½ per cent. Taking the whole period from 1860 to 1868 inclusive, the total increase in tonnage of the Canals is 27 per cent., and for the same period on all the Railroads in the State is 130 per cent.; or the increase in tonnage of the Railroads has been for the past nine years five times greater than the increase of the Canals. The total mileage in 1868, on the Canals, was as great, for nine months, as the mileage on all the Railroads in the State for twelve months.

In reference to the increased capacity and usefulness of the Canal, the report says:

WHEN WILL THE CAPACITY OF THE ERIE CANAL BE REACHED?

The solution of this question is difficult from the fluctuation of annual tonnage. By taking the total tonnage shipped over the Erie Canal from other States, via Buffalo, Black Rock and Tonawanda, in 1837, and increasing this at the annual rate of 15 per cent. up to 1864, it equals the tons actually

shipped in that year. By dividing the whole period from 1837 to and including 1866, into periods of five years each; the first period increased at the annual rate of 42 per cent., the second 18 per cent., the third 10 per cent., the fourth no increase, and the fifth, up to and including 1866, no material increase.

By taking a period of the past ten years, the increase amounts to an annual rate of ten per cent. The increase from and including 1859, to and including 1862, was at the rate of 42 per cent.; but from and including 1862, to and including 1866, the decrease was at the annual rate of 8 per cent.

Assuming the annual rate of increase to be the same for the coming ten years, as it was in the past, at ten per cent., the capacity (based upon the lockage tonnage of 1866) of the single locks will be reached in seven years, and the double locks in thirteen years.

NAVIGATING THE CANAL BY STEAM.

The question of the practicability of navigating the canals with steam as a motive power should be settled at the earliest practicable moment, and I would recommend that an appropriation be made of not less than \$20,000, and authority be given to the Canal Board to have such experiments and examinations made as would determine the best method of applying steam to canal navigation, and that the said Board be empowered to employ a competent engineer to assist in such investigation.

Albany & Susquehanna Railroad.

The Albany *Evening Journal* says that the Delaware & Hudson Canal Company have taken a perpetual lease of the Albany & Susquehanna Railroad. By the terms of the contract, the lessees are to pay an interest of 7 per cent. upon \$7,000,000, made up as follows:

On paid up stock.....	\$2,500,000
On the Albany City bonds....	1,000,000
On the first mortgage bonds.....	1,000,000
On second mortgage bonds.....	2,000,000
On equipment bonds	500,000
	<hr/>
	\$7,000,000

To meet this interest will require an annual outlay of \$490,000

The Delaware & Hudson Company assume the interest on all the bonds from the 1st of March ensuing; but the interest on \$2,500,000 of stock is not to be assumed until the 1st day of January next.

The 9,500 shares of subscribed stock, upon which 10 per cent. has been paid, is to be paid in full as the necessities of the road may require. The shares will only bear interest as, and to the extent that, they are paid for.

The road will continue to be run under its present management, the lessees, of course, having the power to make changes when and as they please, in the employees. The stockholders will continue to control the direction of the road.

All existing contracts with other railroads and coal companies, to be carried out, in good faith, by the lessees.

The lessees have given the directors of the road, most positive assurances that the interests of Albany, and of the people living on the line of the road, shall be scrupulously regarded; and that nothing shall be done to make these local interests regret the arrangements which have been entered into.—*American R. R. Journal*.

Railroad Items.

—The Kentucky Improvement Company have recently sold their railroad, furnace and mines in Greenup County, Kentucky, to the Eastern Kentucky Railroad Company, who will probably build a railroad to Grayson, in Carter County, during the present year. This road will bring into development very extensive fields of coal and iron ore hitherto away from all transportation. The officers of the railroad company are Nathaniel Thayer, of Boston, President; H. W. Bates, of Cincinnati, Vice President; Richard Sullivan, of Boston, Treasurer; J. M. L. Staughton, of Cincinnati, Superintendent and Engineer. The general office of the company is established in Greenup County, with an agency at 15 West Third street, Cincinnati.

—The following is a statement of approximate earnings of the Marietta & Cincinnati Railroad, for the fourth week of February, 1870:

	1870.	1869.
Passengers.....	\$6,768	\$6,485
Freight.....	12,222	15,213
Mail, Exp. and Telegraph....	1,153	1,000
Total.....	\$24,143	\$22,698
Total this month to date....	98,275	91,666
Total for the fiscal year, commencing 1st of January...	188,452	190,183

—The Directors of the Grand Rapids, Wabash & Cincinnati Railroad Company, met at Wabash, Indiana, March 2, and consummated arrangements and entered into a contract with A. G. Willis & Co., of Kalamazoo, Michigan, for the immediate construction of said road. The road is to run from White Pigeon, in Michigan, via Goshen, Warsaw, Wabash and Marion, to Anderson, Indiana. It will be completed to Warsaw by the 1st of July next, and probably to Wabash as soon as January.

—A case was commenced, in Indianapolis, March 2, in the Common Pleas Court, for the April term, in which there are ninety-three plaintiffs. It is made by parties living in Morgan County, against the Indianapolis & Vincennes Railroad Company and others, for the amounts of their subscriptions subscribed upon the condition that the road should be built upon a certain line. The company failing to build as agreed, the plaintiffs now sue to cancel their subscription.

—The earnings of the St. Louis, Alton & Terre Haute Railway Company, for the year 1868, were \$1,692,828 43; Belleville Branch, \$243,959 21; total earnings, \$1,936,787 64. Earnings of the main line for 1869, \$1,763,226 56; Belleville Branch, \$252,315 56; total earnings, \$2,015,542 12. Increase of earnings over 1868, on main line, \$70,398 12; on Belleville Branch, \$8,356 35; total increase, \$78,754 98.

—The new Vandalia Railroad, between Terre Haute and St. Louis, will be finished inside of thirty days, and will be opened for business in May. The new road between Indianapolis and Terre Haute will be completed by that time.

—The Rensselaer & Saratoga Railroad Company propose constructing a track from Schenectady to the Duaneburg station, on the Susquehanna Railroad, and hope to be able to secure cheap coal to Troy.

—The total funded State debt of Ohio, on Nov. 15, 1869, was \$10,016,581 56.

Southern Transportation.

The remarkable improvement in Southern trade forces upon the people of the whole country the important question of the development of Southern transportation. At present all the railroad and water lines from the North and West to the South are blockaded with freight, and business is now actually impeded and checked by the inadequate means of transportation. Merchants in the South can not obtain goods in consequence of the delays in transportation, and Northern and Western merchants are unable to forward merchandise to its destination. Thus all parts of the country have reason to complain of the existing condition of affairs, and are interested in the means for remedying them.

The causes of the delays in the transportation of Southern transportation are sufficiently apparent. The railroad transportation, with few exceptions, is very nearly in the same condition as before the war. In some cases the rolling stock and road beds have seriously deteriorated. The South has made immense and most creditable exertions at railroad improvement since the close of hostilities. But the work was full of difficulties and impediments. There was no capital, and until within a year past scarcely any trade. The titles to some of the leading lines were involved in doubt; and the military lines that had been restored by the National Government were subject to conditions, which, in some cases, depended largely upon the political complexion of affairs.

Under these circumstances it is no more than might have been expected, to find that the Southern railroads on the return of business activity are inadequate for the requirements of commerce. There is now as much if not more business done in the South than before the war, while the means for transportation are impaired. The rolling stock on some of the Southern lines has sadly fallen off. The locomotives are old-fashioned, almost worn out, and deficient in power. The cars are old and rickety and too few in number. A short time since a loan of money was effected at St. Louis, by which an arrangement was made for the purchase of sufficient rolling stock to inaugurate a fast freight line over the Iron Mountains and the Mobile & Ohio Railroad. The railroads centering at Chattanooga were lately represented as requiring 4,000 extra cars for the conveyance of the freight coming forward. At Memphis the merchants are forced to consider the means for aiding the Arkansas railroads in adding to them rolling stock. All through the Mississippi Valley and on the Southern Atlantic seaboard the same complaints of inadequate transportation are heard.

This increase of Southern freight is an excellent feature of the times. It proves that business is rapidly resuming its normal conditions. It also shows that there is now an excellent opening for capital in the construction of new and the improvement of old lines of Southern railroads. During the next few years we may look for remarkable railroad developments in that section. The popularity of the new loan for the completion of the Chesapeake & Ohio Railroad shows that Northern capitalists are already favorably disposed on this subject. Southern railroads offer as certain and as profitable inducements to capital as can be found in any other part of the country. Fortunately, the South is no longer deficient in capital to aid in the work.—*N. Y. Economist*.

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6-1-70, 17.

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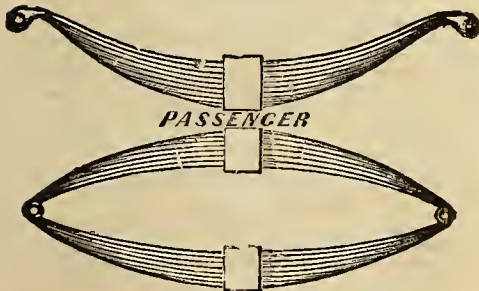
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SEALED PROPOSALS will be received at the Engineer's office at Charleston, W. Va., until 12 M. March 1, 1870, for the GRADUATION, MASONRY and the SUPERSTRUCTURE OF BRIDGES on the Chesapeake and Ohio Railroad between the Falls of Kanawha and the Ohio River, including THREE MILLIONS CUBIC YARDS OF EXCAVATION, and SEVENTY THOUSAND CUBIC YARDS OF MASONRY.

Also, at the Engineer's office at Rich. and Va., until 12 M. March 10, 1870, for several heavy sections east of the Falls of Kanawha, including the unfinished work near Millboro' and that eight miles east of the White Sulphur Springs, the Great Bend tunnel 6,100 feet; Lewis tunnel, 3,800 feet; five other tunnels from 500 to 1,500 feet long; several sections in rock cutting; and about 70,000 cubic yards of masonry.

Profiles and specifications can be found at the office of the company 54 William street New York, on and after February 1; at Richmond, Va. and at Charleston W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va. or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia.

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27-1-70, 4.

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TRAINS RUN AS FOLLOWS:

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Osgood Accommodation..... 8:10 P. M. 8:45 A. M.
Through Western Express..... 6:10 P. M. 8:30 P. M.
Night Express..... 10:30 P. M. 6:30 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cind. time.

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Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Ciu'ti time.

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9.45 P. M. LIGHTNING EXPRESS,
daily. Arrives Dayton, 12.01 A. M.; Urbana, 1.26 A. M.; Gallion, 4.00 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.56 A. M. (Bkfst); Akron, 7.33 A. M.; Ravenna, 8.20 A. M.; Meadville, 11.16 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.10 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

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And all Rail and River Towns and Cities in the West,
North-west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.30 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

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Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway). 7.00 A. M.	6.30 P. M.	
do do do 9.45 P. M.	7.00 A. M.	
Toledo, Detroit & Canada..... 7.15 A. M.	10.25 P. M.	
do do do 6.30 P. M.	7.00 A. M.	
Lima Fort Wayne & Chicago.... 7.15 A. M.	10.25 P. M.	
do do do 2.30 P. M.	5.40 P. M.	
do do do 6.30 P. M.	7.30 A. M.	
Sandusky, Cleveland & Buffalo... 7.15 A. M.	5.40 P. M.	
Springfield Accommodation.... 2.30 P. M.	10.20 A. M.	
Sandusky, Cleveland & Buffalo... 6.30 P. M.	10.20 A. M.	
Muncie & Indianapolis 7.15 A. M.	10.25 P. M.	
do do do 5.40 P. M.	1.30 P. M.	
Hamilton, Eaton & Richmond ... 7.15 A. M.	10.25 P. M.	
do do do 5.40 P. M.	10.20 A. M.	
Hamilton Accommodation..... 9.30 A. M.	8.05 A. M.	
do do do 6.50 A. M.	6.50 A. M.	

Trains run **SEVEN MINUTES FASTER** than Cincinnati time.

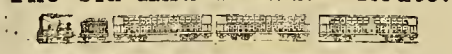
For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

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Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

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Morning Mail.....	7.30 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.1 P. M.	5.00 A. M.
Walton Accommodation.....	4.10 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No 1 Burnet House or Depot Covington, Ky.

SAM'L GILL, Gen'l Sup't Louisville.

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Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at East on with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

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Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckhannock, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Luzerne, Ephrata, Litz, Pittsburg, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton Bethlehem Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:20, 3:00, 3:30, 3:45, 4:15, 4.3, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:10, 7:2, 7:40, 8:0, 8:30, 9, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 536 Broadway; at No. 10 Greenwicz st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MARCH 17, 1870

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

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WRIGHTSON & CO., Prop'rs.

What Shall Cincinnati Do Now?

The “Southern road” has been defeated in the Kentucky Legislature. It was a curious spectacle to see a people, through their representatives, deliberately reject the expenditure among them of ten million dollars, merely from local jealousies. We have expressed the opinion—and still hold that opinion—that the *real* interests of Louisville were in favor of the “Southern road,” and the time will come when that will be very evident; but, “sufficient for the day is the evil thereof.” The measure is defeated; but does that really defeat a Cincinnati connection with the South? By no means; but it delays it; and probably that is all that is hoped for by the enemies of Cincinnati. We have no doubt that the people of Kentucky will take up this question and reverse their action. But if that be done at the next election, there will be a delay not only of two years of time, but a much worse delay in meeting the competition which arises from St. Louis and Chicago. All this, however, is beyond the power of Cincinnati. The question is, what can she now do to help herself, and extend the Southern trade? In the first place, Cincinnati can seize the advantage she has in making her south-eastern connections. This she must do through the Chesapeake & Ohio road. It is a golden opportunity; but will she do it? In order to make that connection, one hundred and twenty-five miles of road must be made between Cincinnati and the Big Sandy. The cost will be \$5,000,000. How is that to be raised? The parties to do it are the counties of Lawrence,

Scioto, Adams, Brown, Clermont, and the city of Cincinnati—six counties and municipalities. Supposing that half the cost can be raised on mortgage, then \$2,500,000 must be raised on subscriptions. Five counties raising \$300,000 each, will make \$1,500,000. The city of Portsmouth should raise \$200,000, and the city of Cincinnati \$800,000. This is a fair apportionment, and can it not easily be done? It would be done in a week, were it not for the Constitutional provision prohibiting municipalities from subscribing.

If human genius had been exercised to find a way to prevent the prosperity of Cincinnati, and Ohio, nothing could be found so effectual as that provision; but it is there; we can not get rid of it under at least two years. We can not afford to wait. What can we do? There is nothing in the Constitution to prevent these municipalities from making a road themselves.

The principle of the “Ferguson Bill,” is that a city, or corporation, may do itself, and on its own account, what it is not constitutionally capable of doing through railroad and other corporations; but if this be a correct principle, it is certainly applicable to all municipalities. Hence, there is an application now to the Legislature to apply this principle to all the counties. This would give aid to all railroads in our own State, but will not help us in Kentucky.

The Chesapeake & Ohio road is of immense importance to Cincinnati, and can scarcely be over-estimated. It is a great opportunity for Cincinnati. Shall another opportunity be lost? We hope not. But we see everywhere around us evidence of enterprise and public spirit, which we do not see in Cincinnati. There is wanting here a concentration of mind to effect public objects. We have not got it. The organization of the Board of Trade was the best thing done here in the way of public spirit, for a good while. It has, at least, the good effect of combining a few minds, and of giving some examination to enterprises of public importance. If the Board of Trade would take up this subject, and form a plan of raising the means for the Cincinnati connection with the Chesapeake & Ohio road, they will do a good and most necessary work, and they ought to do it immediately. An appeal for private subscriptions would probably be successful, to some extent, but that which we have suggested is the most practical, and would be preferable.

But, says some one, what is to be done for the “Southern road?” Well, there are three different ways of doing that: 1. In all human probability the appeal to the good sense, and the interests, and the good feelings of Kentucky, will be successful; and the people will themselves wipe out the stain which has been cast upon the fair fame of Kentucky for generous magnanimity, and put away the obstructions which the Legislature

has put in the way of its own prosperity. But, as we have said, this will require delay, and it might be for two or three years. We hope for the best; but, in fact, the scheme has met with absolute defeat in Kentucky. What next? 2. If we had our way, we would have Congress charter a road from Cincinnati to Knoxville, Chattanooga, or any other suitable point. Congress has absolute and ample power over the whole subject. The Constitution gives power to Congress to regulate commerce among the “several States,” and Congress has legislated under that power in an hundred cases. How would it be done? Let Congress empower Cincinnati, as an existing corporation, to make that road. This will be the “Ferguson Bill” enacted by Congress; and make its Constitutionality undoubted. Congress is now enacting such a bill in the case of New Jersey; and also another from Norfolk to St. Louis, with the consent and approbation of leading Louisville interests; and why should Kentucky be allowed to stop up the way in one direction any more than in another, or any more than New Jersey? Perhaps Congress may not do this to-day, but the time is near when they will do that, and other things of the same nature. 3. The plain and obvious way of making a road through Kentucky, is to continue the Kentucky Central Railroad, which may be done with far less capital than Cincinnati proposes to expend. But how is it to be done? If there were any public spirit in Cincinnati, it would be done just as New York made the Hudson River Railroad—by a prompt and liberal subscription by the citizens. When New York was not half its present size, the citizens subscribed, in a few days, \$3,000,000, and the road—now worth \$25,000,000—was put through. Now \$2,000,000 will put the Southern road through easily. Can not this city of 275,000 people, and \$300,000,000 of capital, do this? We should think it could be done easily. The counties will give large subscriptions, and a single first mortgage will cover all that is needed.

We have heard a rumor that the Pennsylvania road will lease and furnish the Kentucky Central. We only know it will be a grand stroke of policy for them if they do. They can have a *trunk line* from Philadelphia to the Gulf, and command the trade of the Southwest! If the managers have the sagacity we give them credit for, they will do it.

E. D. M.

[Since the above was in type, the President of the Kentucky Central has distinctly denied any knowledge of the affair; and, although a bill has been introduced into Congress to grant the above-named charter, or right of way, the trustees have, as will be seen by the following, discarded all connection with the movement. This we understand to be their views. They intend to rely on

the good sense of the people of Kentucky, and feel confident when a few members of the Legislature become convinced that their opposition to the wishes of Cincinnati and Central Kentucky will not build a railroad for them all over the State, that the "Southern Railway" will have a very large majority in both Houses. T. W.]

A Prompt Declination.

The Trustees of the "Southern Railroad" yesterday sent the following telegram to Hon. John Sherman, at Washington, it explains itself:

CINCINNATI, March 16, 1870.

To HON. JOHN SHERMAN, Washington, D. C.:

The special telegram to the Cincinnati Commercial, of this morning, states that you yesterday introduced into the Senate a bill incorporating the "Cincinnati and Chattanooga Railroad Company, and named in it, among other incorporators, the Trustees of the "Cincinnati Southern Railway," appointed under a law of Ohio to provide a railway between the same points. As the position of corporators in such a company is incompatible with our duty as Trustees, you will oblige us by dropping our names from the bill. As you no doubt included our names upon representations made to you that it met with our approval, we beg to assure you that such representations were wholly unauthorized:

MILES GREENWOOD,
WILLIAM COOPER,
PHILIP HEIDELBACH,
E. A. FERGUSON,
R. M. BISHOP.

The Southern Railway Survey.

REPORT OF THE WORK DONE AND SOME IMPORTANT SUGGESTIONS.

The following report of W. A. Gunn, Chief Engineer of the Southern Railway, has been submitted to the Board of Trustees, under whose direction the surveys were performed: To the Board of Trustees of the Cincinnati Southern Railway:

GENTLEMEN: The surveys which have been in progress under my direction since last August are so far completed as to cover the following routes: From Cincinnati to Lexington by way of Williamstown and Georgetown; from Georgetown by Versailles and Harrodsburg to Danville, Kentucky; from Paris by Winchester and Richmond to the Lebanon and Knoxville Railroad, a few miles east of Mt. Vernon.

There is in progress, and will be completed in a few days, a survey from a point near Boone's Gap, about eighteen miles south of Richmond, on the last named route, by Broadhead Station to Somerset, to connect with the old Burnside survey. There is also in progress and nearly completed, a survey from Nicholasville by Lancaster and Walnut Flat to Somerset.

A thorough reconnaissance has also been made of the entire region through East Tennessee where any probability exists of a feasible route for a railroad from Cincinnati to Chattanooga. This examination has been made by Ernst Ruhl, Esq., an engineer of ample experience, having been engaged in the construction of the Ohio and Mississippi Railroad and other works, and having also been engaged on the Burnside survey, and afterward on the completion of that line in

1865 and 1866, and being thereby well acquainted with the country to be explored.

His report in detail has been submitted to your consideration, and in accordance with his suggestions and my own observations there should be some few lines surveyed to perfect the Burnside survey across the mountains to the Knoxville and Kentucky Railroad, and to Emory River.

There should also be surveyed the "central route," from a point on the Burnside survey about ten miles south of Danville through Monticello, Ky., Jamestown, Tenn., and passing near the head of Sequatchie Valley, and down White's Creek to Colonel Gaw's survey, and a line branching from this and going down Sequatchie Valley to its mouth, and thence to Chattanooga. This much is necessary to an intelligent location of any part of the line.

With these surveys completed, you will have by existing roads and surveys the elements of the route from Cincinnati by Paris, Richmond and London to Knoxville, the routes by the Kentucky Central, Lexington, Danville, Somerset and Chitwood to Knoxville, and from Chitwood by Emory River to Sweetwater and Chattanooga, the same to Lexington, and by Nicholasville, Lancaster and Somerset to the same points.

You also have the Short Line route from Cincinnati to Lexington, and thence to the points above named—the Short Line route to Georgetown, and thence by Versailles and Harrodsburg to Danville, &c.; and from Danville by Monticello to Chattanooga, and from Danville by the old survey to Columbia and Burkesville, and thence by the survey of the Southwestern Railroad of Tennessee, the line from Burkesville, Kentucky, to Sparta and McMinnville, Tennessee. The latter will give a complete survey of the western route; with the exception of the distance from Sparta to Dunlap, in Tennessee, and from these routes the best general location can be determined.

Respectfully, W. A. GUNN, C. E.
CINCINNATI, O., March 8, 1870.

HOMES FOR ALL.—In Kansas there are said to be 20,000,000 acres of land unsurveyed, and that there are 40,000,000 acres still in the possession of the Government, while there are less than 2,000,000 acres under nominal cultivation.

Experiments with the coal from the Rocky Mountains, in the Union Pacific shops, in working iron, have proved eminently satisfactory. The Omaha Herald says:

"The proportions of metal and coal were in the same ratio, nearly, as in ordinary operations of the kind. While the metal was being carried to the mould, every attention was paid to its color, and every variation it might seem to undergo, and it passed the test triumphantly. Both in Iowa and Illinois, similar tests have been made with the coal of those States; but, though the melting process was secured, the iron was unfitted for any use, while this adds to its fineness of grain and toughness. No sulphuric gasses appeared in the whole operation."

TRANS RUSSIAN RAILWAY.—The railroad connecting the Baltic Sea on the north with the Sea of Azof, in the south of Russia, is announced completed, the last session was opened for travel on January 4.

Northern Central Railway.

The general meeting of the stockholders of the Northern Central Railway Company was held at Calvert Station, in this city, yesterday. Mr. G. D. Clark was appointed Chairman and R. A. Remare, Secretary.

THE ANNUAL REPORT.—The annual report of the President and Directors was presented by the President, showing the financial condition and operation of the road for the year ending December 31, 1869.

The financial statement of the company is, in brief, as follows:

ASSETS.

Railway and appurtenances:	
Real estate and equipment.....	\$13,555,720 37
Cash and cash assets.....	1,384,064 63
Total.....	\$14,939,789 00

LIABILITIES.

Capital stock.....	\$5,000,000 00
Bonds and other liabilities.....	8,982,150 91
Total.....	\$13,982,150 91

Amount to credit of profit and loss..... \$957,638 08

The sinking funds have been increased \$43,000, the total amounts now in the sinking funds amounting to \$766,500. The mortgage for \$25,000 of the York and Cumberland Railroad Company, due January 7, 1871, has been paid and cancelled. The mortgage for \$175,000 of the York and Cumberland Railroad Company, due on the 1st of May, 1870, will be paid at maturity out of the funds now in the sinking fund.

The entire earnings of the company, including the main line and branches, were \$4,303,783 54, made up as follows:

From freights.....	\$2,968,333 03
From passengers.....	957,972 10
From express.....	89,693 20
From United States mails.....	38,507 50
From sundry sources.....	249,277 71
The expenses were:	
For conducting transportation.....	\$1,011,701 15
For motive power.....	882,495 56
For maintenance of cars.....	283,242 60
For maintenance of way.....	767,334 24
For general expenses.....	72,207 33

Total expenses..... \$3,016,980 88

Net revenue.....	\$1,286,802 66
Out of which has been paid:	
For interest.....	\$486,179 08
For dividends.....	299,401 00
For taxes on dividends.....	28,950 43
For rent of W. Y. & G. R. R.....	11,872 68
For rent of L. V. & P. R. R.....	101,167 00
For rent of E. & W. R. R.....	165,000 00
For rent of E. J. & C. R. R.....	25,000 00

Total..... \$1,117,570 18

Leaving a balance of \$169,232.47 to be applied to the payment of the next dividend.

The following is a comparison of receipts and expenditures of the different roads between the years 1868 and 1869:

The earnings of the main line in 1869 were \$2,928,063 28, and in 1868, \$2,907,151.82, an increase in 1869 of \$20,911.46.

The earnings of the Wrightsville division in 1869 were \$61,436.70, and in 1868, \$43,788.58, an increase in 1869 of \$17,648.12.

The earnings of the Shamokin division in 1869 were \$261,317 04, and in 1868, \$277,763.49, a decrease in 1869 of \$16,446.45.

The earnings of E. and W. division in 1869

were \$562,932.88, and in 1868, \$528,626.39, an increase in 1869 of \$34,306.49.

The earnings of the Chemung division in 1869 were \$185,502.65, and in 1868, \$160,397.58, an increase in 1869 of \$25,105.07.

The earnings of the Canandaigua division in 1869 were \$304,530.99, and in 1868, \$233,624.05, an increase in 1869 of \$70,906.94.

Showing a total gain in gross receipts during the past year over the preceding year of \$152,431.63, while the total expenses of 1869 exceeded those of 1868, \$54,653.36, showing a total net gain for the year of \$97,778.27, or within a fraction of two per cent on the capital stock. The operating expenses of the road were 7 1-10 per cent of the receipts, being 1 1/2 per cent less than the previous year.

There was moved, in 1869, 3,413,332 tons of freight; in 1868, 3,138,319 tons. An increase in 1869 of 275,013 tons. The price received for moving one ton one mile was 2 1/2 cent, being 5-100 of a cent less than in 1868.

We carried during the year 1,137,694 passengers, an increase for the year of 115,935.

The equipment belonging to the company is now fully up to its requirements, and is in excellent condition. We have 130 locomotives, 22 of which were added during the year—20 purchased, and 2 rebuilt at the shops of the company. The greatest mileage made by one locomotive was on a passenger train between Baltimore and Sunbury. Engine No. 100 made 47,297 miles. The greatest mileage made by a freight engine was between the same points—28,225 miles—by engine 22. The total mileage of engines was 2,369,326 miles.

The total amount of motive power repairs in 1868 was \$219,242.67; in 1869, \$194,338.49—a decrease in this expenditure of \$24,844.18. Total cost of fuel for 1868, \$308,299.07; for 1869, \$338,299.32; increase in 1869, \$29,910.25. Amount of stores in 1869, \$34,763.65; in 1868, \$33,574.06; increase in 1869, \$1,189.59; total increase of motive power expenses over 1868, \$6,215.66, while there is an increase in the mileage of 156,968 miles. We have of first-class passenger cars, 64; second-class passenger cars, 3; baggage cars, 22; express cars, 16; total passenger equipment 105 cars; freight box cars, 8 wheel, 990; freight box cars, 4 wheel, 5; gondola cars, 8-wheel, 544; stock cars, 8-wheel, 51; box stock cars, 8-wheel, 101; stone cars, 8-wheel, 25; coal cars, 8-wheel, 1,068; coal cars, 4-wheel, 2,422; lime cars, 4-wheel, 185; tool cars, 8 wheel, 10; freight caboose cars, 56; maintenance of way cars, 4—total freight cars, 5,461.

There have been added during the year 4 first class passenger cars, 200 box cars, 18 stone cars, 577 eight-wheel coal cars, 16 four-wheel coal cars and 5 lime cars. There have been rebuilt 2 first class passenger cars, 1 baggage car, 2 express cars, 16 box cars, 23 gondolas, 2 stock cars, 13 eight-wheel coal cars, 61 four-wheel coal cars, 8 lime cars, 1 tool car and 2 freight cabooses.

The good condition of the track and bridges has been fully maintained during the year. There have been used in the track 146,348 cross ties, 13,998 chairs, 173,505 pounds of spikes and 4,715 tons of iron, at a cost of \$295,768.62.

The amount expended in 1869 to repair the damage done by the flood of July, 1868, was \$22,077.34. The repair of damages by the flood in the Gunpowder during last summer was \$10,756.29. We have expended in renewing the masonry of nine bridges and erecting three iron bridges \$60,078.08.

There have been charged to equipment account during the last year \$868,297.12, in payment of locomotives and cars heretofore referred to. The construction account has increased \$565,483.75, which has been expended in completing second track between Dauphin and Millersburg, on the new line in Baltimore, increasing the size of the round-house at Marysville, &c.

The real estate account has been increased \$110,678.32, expended principally for land required for the new line and new shops in Baltimore, making a total charge to the principal account of \$1,543,959.19, an amount much larger than will be required in any year in the near future.

DIRECTORS.—The meeting then proceeded to the election of Directors to serve during the ensuing year, when the following gentlemen were elected: J. D. Cameron, Wistar Morris, J. M. Kennedy, E. C. Biddle, Ed. Smith, J. P. Jones, A. E. Kapp, Wm. Colder, Henry Welsh, Geo. Small, B. F. Newcomer and S. M. Shoemaker.

OFFICERS.—On the adjournment of the general meeting the Directors met, electing J. D. Cameron, President; J. N. Du Barry, Vice President; and Robert S. Hollings, Secretary. Thomas A. Scott was elected a Director to fill the vacancy created by the election of J. D. Cameron, President.

There is thus no change in Officers or Directors.—*Baltimore Sun, February 25.*

Railroads in New England.

If all the changes are made with regard to some of our railroads which have been lately talked of, a great deal of work is to be done in this line.

The Barre Railroad from Worcester to Gardner is under construction, and it has been proposed to extend it to meet the Cheshire Railroad in Winchendon. The Massachusetts Central is seeking a middle route to Boston, between the Boston and Albany and the Fitchburg. The Cheshire Railroad proposes to extend itself from Ashburnham to Fitchburg, and it has been proposed to extend the Vermont and Massachusetts road from Ashburnham along by the side of the Cheshire to Winchendon, and then across to their own road again, making a shorter through route. It is claimed that legislation of last winter authorizes this.

A railroad is proposed from Bellows Falls to Brattleboro, and thence to South Vernon, competing with the Valley Railroad and the upper ten miles of the Vermont and Massachusetts. A railroad is also talked of from the New London Northern Railroad at Amherst to Northampton, connecting there with the Canal Railroad. The Vermont and Massachusetts Railroad have advertised notice of a petition to the Legislature for leave to sell or lease that part of their railroad which lies between Grout's Corner and Brattleboro. The connecting roads that can purchase or lease are the Rutland, which operates the Valley; the Cheshire, which operates the Ashuelot; the Connecticut River Railroad, and the New London Northern Railroad. If these new railroads are built, it will probably establish competing lines through Massachusetts to New York, the Rutland taking one route and the Vermont Central the other. One will probably go down over the Connecticut River Railroad to Springfield, New Haven, and thence by land or water to New York; and the other down over the New London Railroad to New London, for a water route to New York, and by way of Amherst, South-

ampton, and the Canal Railroad for a land route to New York.

It is claimed that each of these routes has its advantages and attractions. At all events, if all these plans of new railroads are carried out, the Montreal and Vermont travel ought to be well accommodated and will be likely to profit by competition. The trouble seems to be that two such good all rail land routes to New York, with the independent water routes which each line could furnish, would hardly find business enough to support them. Besides all this, it is said that the Cheshire Railroad could stop in at Bellows Falls, take freight and travel down through Keene and the Ashuelot Road to South Vernon, and there deliver it to whichever New York line it chose. And it is said, if the Cheshire could hire or buy the railroad from Grout's to Brattleboro, they would have the key to the whole concern and help their own cause. If the Connecticut River Railroad should hire or buy it, they could interfere with New London and the Valley or Rutland; if the Rutland should hire or buy it, they could side with the New London or Connecticut River Railroad as they pleased; and if the New London Northern should hire or buy it, they would be no more likely to encourage a diversion of the traffic on to the Connecticut River Railroad than that road would be to divert the travel on the New London Northern road.

It is said also, if the Connecticut River Railroad should buy or hire the road from Brattleboro to South Vernon, and the road should be built from Brattleboro to Bellows Falls, then the Rutland, representing the Valley road, would be obliged to extend the Valley road from Brattleboro to South Vernon, and the Cheshire, representing the Ashuelot, or the New London Northern, might be obliged to buy the road between South Vernon and Grout's Corner, and by building about a mile of new road up the Connecticut river on the East from Northfield bridge to the Ashuelot, avoid two bridges across the Connecticut river, and make another great through route by the way of Keene. These are some of the whisperings we have heard. If a tithe of these plans are carried out, there will be likely to be a muddle among these several railroads.—*Boston Advertiser.*

Depth of Rail Section.

The rail is practically nothing but a girder for supporting the weight of the train, and the stiffer it is at all points, the nearer it approximates in character to the bed of a planer, the better it will fulfill the conditions required of it. In using fish-plates, the joint is always the weak spot, because there is not the requisite amount of metal to resist the vertical pressure. The common form of iron rail, with 3 1/2 and 4 inches depth of section, has always been regarded as too shallow for proper fishing at the joints, and the best engineers have advocated a change. We are glad to learn that on the New York Central the managers have now adopted 4 1/2 inches for steel rails and 5 inches for iron. These standard depths, with a proper arrangement of the fish-plates at the joints, and a proper arrangement of cross-ties, will be a great advance upon the common practice, giving increased steadiness to the movements of the train, and a consequent prolongation to the life of the rolling stock. We commend these standard depths of rail section to other managers as the proper ones for adoption, especially for all roads with any considerable amount of traffic.—*Railway Times.*

Rome, Watertown & Ogdensburgh R. R.

The gross earnings of the road and branches of this company (including the Oswego and Rome Railroad, leased), for the years ending December 31, 1868 and 1869, were as follows:

	1868.	1869
From passengers.....	\$477,088 41	\$496,473 96
From freight....	658,143 50	699,975 25
From mails, etc.	73,708 54	77,684 84
	<u>\$1,208,940 75</u>	<u>\$1,274,134 05</u>
Expenses, viz.:		
Operating and maintaining roads.....	691,383 54	686,794 70
Expended on new construction	30,705 07	30,000 00
Taxes paid.....	56,996 29	55,341 06
	<u>\$779,084 90</u>	<u>\$772,136 36</u>
Leaving a balance of.....	429,855 85	501,997 69
Add balance from previous year.....		642,054 12
Add income of sinking fund		22,545 86
Total.....		<u>\$1,166,597 67</u>
Thus accounted for:		
Rent to Rome & Oswego R. R.		50,540 85
Coupons and interest.....		119,090 72
Two dividends, 5 per cent. each, and taxes.....		262,500 00
Fifty per cent on 4,764 shares new stock.....		238,200 00
Iron credited surplus account in error in 1868.....		19 296 29
Surplus, December 31, 1869..		476,969 81
Total as above.....		<u>\$1,166,597 67</u>

It will be seen that the earnings exceed those of the previous year \$65,193 30, while the expenses are \$6,948 54 less—showing a net increase of \$72,141 84. The report says:

An increase to the capital stock authorized by a vote of the stockholders to the extent of five thousand shares, has been mostly issued during the year, having been divided *pro rata* among the stockholders, at \$50 per share, and *none otherwise*, bringing into the Treasury the amount of \$238,200, leaving the difference between that sum and par (or upon what has been delivered), the same sum as above, viz: \$238,200, which has been charged to surplus account, leaving still to the credit of that account an amount quite sufficient for all practical purposes, or for contingencies.

All that has been used of the money thus received for new stock, has been applied in payment of the Company. The balance has been loaned on call on the best collaterals, by instructions of the Finance Committee, to be used as required in further payment of bonds, or otherwise, as the Board may direct. If there has been any apprehension that this Company have fallen into the practice, too common nowadays, of stock *dilution*, one simple statement will doubtless be found sufficient to dispel any such fear. The stock, bonds and debts of every description outstanding, after applying the surplus and available means on hand, do not aggregate a sum equal to the actual cost of the property by several hundred thousand dollars.

The funded debt has been reduced \$114,000 during the year, leaving the present amount of bonds outstanding, \$1,439,000.

The Company have no floating debt.

Two dividends of 5 per cent. each, and Government tax on the same, have been paid during the year; and one of the same amount on the 15th January ultimo, which is the thirty-third dividend in order, and the thirteenth consecutive semi-annual dividend of five per cent. and tax, which has been paid by the Company.

BALANCE SHEET, DECEMBER 31, 1869.

Cost of road and equipment.....	\$4,000,000 00
“ additional equipment....	347,026 62
“ new engine house.....	18,334 75
“ new depot at Watertown and New York.....	28,880 59
	<u>\$4,389,291 96</u>
Bonds paid by sinking fund.....	\$354,176 13
Bonds paid and on hands	206,700 00
	<u>560,876 13</u>
General supplies.....	\$131,934 49
New York & Rome Trans. Co.....	18,500 00
Wood lands.....	11,079 45
	<u>161,513 94</u>
Paid for fractions new stock	\$10,170 00
New stock, 236 shares.....	23,600 00
Income bonds Oswego & Rome R. R..	37,000 00
Cash loaned on collaterals.....	141,570 00
Cash on hand and in bank.....	111,709 34
Due from agents and U. S. Gov.....	51,059 20
	<u>375,108 54</u>
Capital stock.....	\$5,486,790 57
Funded debt (of this \$354,176 18 is in the sinking fund, and \$206,700 in bonds paid and on hand, leaving but \$1,439,124 87 outstanding).....	2,000,000 00
Due sinking fund.....	\$ 676 13
Dividends unpaid.....	3,630 00
J. Graves.....	500 00
Finishing account, Oswego & Rome R'd	4,975 60
Special sinking fund, Oswego & Rome R'd	39 03
	<u>9,820 76</u>
Surplus.....	476,969 81
	<u>\$5,486,790 57</u>

The total bonded debt of New York State, on Sep. 30, 1869, was \$43,263,366 40; the sinking fund, was \$8,417,270 67, on hand, making the actual indebtedness not provided for \$34,848,035 73. The sinking funds, at their present rate of application, will extinguish the entire State indebtedness in eight years.

NEW BRIDGES.—The East River bridge is to be 1,600 feet long. The St. Louis bridge will have three arches, two of 487 and a middle arch of 515. The Quincy bridge crosses the Mississippi at its widest part; and the Omaha bridge is 2,800 feet long. A bridge over the Hudson at Cornwall, 40 miles above New York, will be 2,500 feet long, with a clear span of 1,600. The new Connecticut River bridge is to be 1,248 feet long, for the accommodation of the Shore Road.

Iowa Railroads.

The Des Moines *Bulletin* contains the following interesting record of railroad building in that State during the past year:

A greater length of railway has been built in Iowa this year than in any other State. At the close of 1865 there were 793 miles finished. At the close of 1867 there were 1,152 miles finished—an increase of 359 miles in these two years. One year later, January 1, 1869, the total completed was 1,451 miles, an increase of 299 miles in 1868.

By letters before us, from officers of the sixteen railways in Iowa, we learn that in the year now closing there will be built a grand total of six hundred and forty-three miles. On eight of these lines there is some yet to build before this amount is reached. But nine-tenths of the work is done. Those that have more to do have so little that they write it will undoubtedly be done this year. These eight are McGregor & Sioux City, Cedar Falls & Minnesota, Central Railroad of Iowa, Burlington & Missouri River, Burlington, Cedar Rapids & Minnesota, Des Moines Valley, St. Louis & Cedar Rapids, Iowa Falls & Sioux City.

On the 4th of November, the Iowa Fall & Sioux City had built ninety-one and one half miles. Between that time and the 1st of Jan. they will have built twenty more, making a total of 119½ miles in 1869. This is the longest stretch made on any one line in the year. The other large builders are: Burlington & Missouri River, 98½ miles; McGregor & Missouri River, 94 1/3 miles; Des Moines Valley, 81 miles; Burlington, Cedar Falls & Minnesota, 67 miles; a total of 460 miles by five companies.

The roads which have been lengthened out or commenced this year are:

McGregor & Missouri River, Cedar Falls & Minnesota, Iowa Falls & Sioux City, Central, Chicago, Rock Island & Pacific, Burlington & Missouri River, Sioux City & Pacific, Burlington, Cedar Rapids & Minnesota, Des Moines Valley, Keokuk & St. Paul.

The following table shows the amount of road constructed in the last four years:

	Miles.
In 1866 and 1867.....	359
In 1868.....	259
In 1869.....	642

Total.....1,301
Add the miles constructed up to 1866... 793
Gives a total of...2,094
miles in operation in Iowa on the 1st day of January, 1870.

Directors of the Union Pacific R. R.—Report of the President.

The stockholders of the Union Pacific Railroad met at Boston, March 9, and elected directors for the ensuing year, as follows:

Oliver Ames, Oakes Ames, John Duff, John B. Alley, C. H. McCormick, W. T. Giddon, R. Hazard, Elisha Atkins, A. E. Lombard, O. S. Chapman, James Brooks, G. M. Dodge, Sidney Dillon, Frederick Nickerson and C. S. Burbell.

The following is the substance of the report made by Oliver Ames, President:

We have spent during the year upon snow sheds and snow fences over \$300,000. We have now over five miles of snow sheds, and nearly fifty miles of snow fences, in addition to the large amount of snow fences put up

last year. Experiment thus far, this winter, shows our road can be run without serious hindrance or obstruction from snow. The snows of the present winter have been the same as last, and we have been but in one instance obstructed over twenty-four hours. Our Superintendent is confident we can keep our road as free from snow as the roads of New England and New York.

Express business over the road was fully investigated last summer, and we have come to the conclusion it would be for the interests of the road to dissolve our connection with Wells, Fargo & Co., and do this business ourselves. The results of the change have been to increase the receipts about thirty per cent above what we received from Wells, Fargo & Co. For the purpose of utilizing our telegraph lines, we have made connection with the Atlantic & Pacific Telegraph Co., through which we are getting a large portion of our telegraphic service free, and have expectations of realizing a handsome income from the \$330,000 of stock we receive from the Atlantic and Pacific Telegraph Company for the use of our lines for commercial purposes, should this company make connection with the Central Pacific Company, as they now expect, and secure a fair share of California business.

The earnings of the road for the months reported since it was first opened amount to \$6,300,000. We anticipate the gross earnings for the ensuing year will reach \$12,000,000, and shall not be surprised should they largely exceed it. The net income from this will pay all interests, with a handsome dividend upon stock, should we not need it for improvements upon the road.

Pennsylvania Railroad Grain Depot, West Philadelphia.

By Jos. M. Wilson, C. E. P. A., Engineer Construction
Department P. R. R.

It is intended as a depot for receiving grain directly from cars and delivering expeditiously into wagons by which it can be transported to the warehouses of the owners. It is 555 feet in length, 125 feet in width and 36 feet from ground line to eaves, being divided into two stories by a floor 19 feet above the ground line. The roof is a single span having a one quarter pitch, and built of wrought iron, upon the simple triangular truss system, with timber principal rafters. It is covered with slate and has, at frequent intervals, sky-lights of hammered glass. The balance of the building is constructed entirely of timber, the sides being sheeted and slated. The total content, comprised within the outside walls and from ground line to slope of roof, is 3,607,500 cubic feet. The cars enter the second story by six tracks running its entire length. Between the tracks the platforms are 4 feet above the rail. Underneath, from the platforms down to eight feet above the lower floor or ground line, the whole of the space is put into bins. From the cars the grain is shoveled directly into upper openings in the bins, which are 11 feet apart on either side of each track. There is a sliding valve in each bin, at the bottom, by which the grain can be passed directly into wagons underneath by its own gravity, the sides of the bins being sloped at such an angle as will insure its delivery. The total number of bins in the building is 600, and the average capacity of each 500 bushels, giving a total capacity of 300,000 bushels. By a system of duplicate numbers on the upper and lower openings of

bins, the grain of different shippers can be kept separate and distinct, and is transferred from car to wagon without confusion. Wagons enter the ground floor by 50 passage ways running in the direction of the width of the building and separated by trestles eleven feet apart, which support the upper floor. These passage ways are directly under the lower openings of the bins, and are closed by doors at each end.

The ground upon which the building is erected being artificially made, upon a bed of river mud of considerable depth, it was decided to use piles in the foundations. The piles along the east or river front were driven to an average depth of 33 feet below ordinary high water before reaching hard bottom. At 150 feet from the east end the average depth was 35 feet; at 300 feet, 34 feet; at 460 feet, 32 feet; at 450 feet, 24 feet; at 500 feet, 14 feet; at 520 feet, 6 feet; and from here to the west end of the building it increased to 19 feet. The piles were of straight growth Hemlock not less than ten inches diameter at the head, which was hooped with a wrought iron band. Under the outside walls they were driven in three rows, and under the interior or cross walls in two rows, being placed 2½ feet between centers across the rows, and three feet between centers lengthwise of the rows. After they were driven the earth was excavated around them to a depth of 2½ feet below ordinary high water, and they were sawed off at that elevation. A cap of flattened Hemlock logs, 9 inches thick and average 15 inches in width on face, was laid upon each row and pinned to the piles by locust pins. Upon this a second course of similar logs, not less than six inches in thickness, was placed crosswise and fastened, thus forming a floor upon which the masonry was built. The platforms of the cross walls were securely tied together by logs of the upper course at intervals of about every 15 feet. The masonry was commenced in March and followed up the pile driving closely. The outside walls are 4 feet thick at bottom, and are carried up to 10½ feet above ordinary high water, diminishing by steps to 2½ feet thickness at top. The cross walls are 3 feet thick at bottom, and are carried up to 12½ feet above ordinary high water, diminishing to 2 feet thickness at top. The whole of the foundations between the masonry was filled up with earth to one foot below top of cross walls, and on a level with 30th Street.

The tracks running on to second floor cross 30th Street by a wrought iron elliptical braced arch bridge of 64 feet 1 inch span and 11 feet 11½ inches rise at the crown. Although not strictly novel in its design, yet it is believed to be the first of its kind put up in this country. It is hinged both at crown and springing, thus reducing the calculations to a certainty not possessed by the ordinary form of arch, and annulling the straining effects due to change of temperature or yielding of piers.

—*Journal Franklin Institute.*

The cotton crop of this year is put at 3,000,000 bales, which, at 25 cents a pound, is worth \$345,000,000, at 460 pounds to the bale. If we take 900,000 bales for home consumption, we have 2,100,000 bales for export, and this will yield the sum of \$241,500,000. Of the 3,000,000 bales, we have exported from September 1, 1869, to Feb. 19, 1870, to foreign ports, 1,040,196 bales, leaving for export 1,059,804 bales, worth \$121,877,460. This indicates, as clearly as anything can do, the increasing prosperity of the South.

Copper.

The copper products and consumption of this country are given as follows:

	Pounds.
The Lake Superior regions having sent to this market about	20,000,000
The Tennessee Copper Co. furnishing, say about	2,000,000
The Baltimore Copper Co. furnishing, say about	4,000,000
The Bergenport (now closed) and Taunton Copper Co., about	2,000,000

Making a total production of ..28,000,000
To which add stock on hand at the beginning of the year, of.....12,000,000

Give us a stock of.....40,000,000
From which to draw for consumption, say.....26,000,000

Leaving a surplus stock, Jan. 1, 1870, of.....14,000,000
Manufacturers are now carrying all that their present and prospective requirements demand, which is not less than.....6,000,000

The imports of copper into the United Kingdom, for 1869, exceeded the exports about 42,500,000 lbs, to which if there be added the home production of 20,000,000 lbs., gave for use 62,500,000 lbs. The highest price for English tough cake in London, during the past twenty years, has been £126 per ton; the lowest £70 per ton, the present price.

Finances of Baltimore.

The report of the City Register gives the following statement of its financial condition:

FUNDED DEBT.

Consolidated Loan	1890, 6 per ct.	\$7,204,969 48
Jail Stock	1873, 6 "	101,576 48
Five Million Loan	1890, 6 "	5,000,000 00
One Million Loan	1886, 6 "	1,000,000 00
Loan of	1884, 6 "	921,800 00
Park Improvement	1895, 6 "	185,723 80
Consolidated Loan	1893, 6 "	2,211,068 05
Exempt Loan	1893, 6 "	413,054 87
Water loan	1875, 6 "	4,631,145 38
Public Park	1890, 6 "	555,566 25
Court House	5 "	137,014 84
Consolidated Loan	1885, 5 "	891,646 70
Over-due Stock, 6 per cent., no interest allowed.		1,105 44

Total Funded Debt.....\$23,254,970 85

The endorsements for various railroad companies are as follows:

For the North-Western Virginia Railroad	\$1,500,000 00
Less redeemed and canceled..	726,500 00
	\$773,500 00
York & Cumberland R. R.	500,000 00
Western Maryland R. R.	500,000 00
Union Railroad	117,000 00
	1,890,500 00

MISCELLANEOUS DEBTS.

Bills payable on account of Richmond Market extension	\$63,159 14
Temporary Loans of Banks..	230,700 00
New City Hall account.....	45,196 03
	617,355 20

Total Liabilities.....\$25,762,826 05
The city has assets applicable to the payment of its debts, amounting to.....21,958,724 25

Making its liabilities in excess of its assets..\$3,804,101 80

The assets consists of: Mortgage on B. & O. R. R., \$5,000,000; mortgage on York & Cumberland R. R., \$500,000; mortgage on Western Maryland R. R., \$500,000; interest coupons paid for Western Maryland R. R. Co., \$14,271; mortgage on Union R. R., \$117,000;

mortgage on Pittsburg & Connellsville R. R., \$2,043,837 91; 32,500 shares B. & O. R. R. stock, \$3,250,000; property under management of Water Board, \$3,500,000; real estate yielding rent, \$331,359 16; due from Union R. R. Co., \$20,000; bills receivable, \$40,000; suspended debt (due by John Lee Chapman), \$7,000; due by B. & O. R. R. Co. (taxes paid for it), \$117,237; amount of back taxes due (estimated), \$800,000; 4,000 shares Western Maryland R. R. stock, \$200,000; 7,600 shares Susquehanna & Tidewater Canal stock, \$380,000; vacant real estate (estimated), \$45,000; present value of sinking funds, \$4,686,539 13; loan in Water Board (Res. No. 467, 1868), \$175,000; due by Water Board (acct overdrawn), 62,341 60; cash in bank, \$169,108 42. The receipts on various accounts during the year were \$6,245,360 50, and the disbursements \$6,263,601 96.

The Public Debt Statement.

The following is a recapitulation of the public debt statement, February 28, 1870:

DEBT BEARING COIN INTEREST.	
Five per cent. bonds.....	\$221,589,300 00
Six per cent. bonds.....	1,886,350 350 00
Total.....	\$2,107,939,650 00
Accrued interest.....	38,708,342 84
DEBT BEARING INTEREST IN LAWFUL MONEY.	
Three per cent. certificates.....	\$45,555,000 00
Navy pension fund, 3 per cent.....	14,000,000 00
Total.....	\$59,555,000 00
Interest.....	525 550 00
Debt on which interest has ceased since maturity.....	\$3,973,346 64
Interest.....	\$521,048 37
DEBT BEARING NO INTEREST.	
Demand and legal tender notes.....	\$356,109,978 50
Federal currency.....	39,950,039 08
Gold certificates of deposit.....	44,382,840 00
Total.....	\$440,442,857 58
Total amount outstanding.....	\$2,611,917,854 22
Total interest.....	29,757,941 21
Total debt, principal and interest, to date, including coupons due, and not presented for payment.....	\$2,651,668,795 43
AMOUNT IN TREASURY.	
Coin.....	\$102,400,739 97
Currency.....	10,280 285 68
Sinking fund in United States coin interest bonds, and accrued interest thereon.....	27,876,529 00
Other United States coin interest bonds purchased, and accrued interest thereon.....	79,782,763 61
Total.....	\$213,340,318 26
Debt, less amount in Treasury.....	\$2,438,328,477 17
Debt, less amount in Treasury, Feb. 1, 1870.....	\$2,444,813 288 92
Decrease of debt during the past month.....	\$6,484 811 75
Decrease of debt since March 1st, 1869....	\$87,134,782 84
Bonds issued to the Pacific Railroad Companies, interest 6 per cent., payable in lawful money:	
Union Pacific.....	\$27,775,000
Kansas Pacific, late Union Pac. E. Division.....	6,300,000
Sioux City & Pacific.....	1,028,320
Central Pacific.....	2,362,100
Central Branch Union Pac. —a—signees of Atchison and Pike's Peak.....	1,600,000
Western Pacific.....	1,970,000
Totals.....	\$64,457,320
Interest paid by U. S.....	\$6,861,664 96
Interest repaid by transportation of mails etc.....	1,994,074 61
Balance of interest paid by U. S.....	4,837,590 35

Fried Krupp, of Essen, Prussia, makes 125,000,000 lbs. of steel annually.

St. Louis and Chicago.

The papers of St. Louis contain details of the business done in that city during the last year, and, as the best means of ascertaining the relative trade of both cities, we compare the figures of Chicago:

—CHICAGO—		—ST. LOUIS—	
Receipts.	Shipments.	Receipts.	Shipments.
Flour, brls..	2,230,904	2,339,168	1,319,041
Wheat, bu.....	16,711,696	1,460,139	7,298,737
Corn, bu.....	2,032,333	20,771,425	3,300,712
Oats, bu.....	11,330,913	8,225,614	3,139,702
Rye, bu.....	1,524,415	749,300	255,946
Barley, bu ...	1,832,400	480,290	745,762

These figures tell their own story. An excess of sixteen and a half millions of bushels of wheat, twenty million bushels of corn, and eight million bushels of oats. But this overwhelming preponderance was not confined to breadstuffs. Here are some other articles:

—CHICAGO—		—ST. LOUIS—	
Receipts.	Shipments.	Receipts.	Shipments.
Whisky, brls..	101,196	105,011	48,603
Lard, lbs.....	6,918,547	17,156,129	221,817
Pork brls.....	52,744	99,444	78,207
Cattle, No.....	403,627	271,080	134,575
Sheep, No.....	339,680	103,513	96,626
Hogs, No.....	1,909,513	122,311	34,048
Salt, brls.....	665,641	513,060	218,000
Lumber, M.....	1,012,678	634,420	176,082

The receipts of tobacco in Chicago were 12,861,428 pounds, against 10,128 bogsheads in St. Louis.

St. Louis manufactured 1,001,161 barrels of flour; Chicago, 549,893 barrels.—*Chicago Tribune*.

POWERFUL TURBINES.—A correspondent of the *American Odd Fellow*, thus describes the turbines used in the Mastodon Mill, in the village of Cohoes, New York.

"The entire number of looms in this mill is fourteen hundred and eighty-six; five hundred of which are located on the first floor."

These looms and the other machinery of the mill are driven by three "immense turbine water wheels, made by the Ames Manufacturing Company, which operate the main shaft, and possess an aggregate driving capacity of over eleven hundred horse-power. This pit having an extreme depth of forty feet, with a floor twenty-five feet from the surface, which hides the water wheels from a top view, is, in reality, an underground two story building. Three mammoth cast iron cylinders, eight feet each in diameter, convey the water from the canal on the west side of the building to the wheels; the volume of water being regulated by a sort of tiller located in the pit, and connected with flood-gates. The perpendicular shaft of each turbine is connected with the main shaft by beveled gear, and the united power exerted, if so applied, would reverse the motion of the great Burden water wheel at Troy, and drive the machinery of a good sized manufactory besides. The shaft to which this wondrous power is applied is supported by three granite abutments, and forms the axis of six ponderous driving pulleys, twelve feet each in diameter. The immense belts which radiate to all parts of the building are in keeping with the massive pulleys and gearing. These are each two feet wide, and the longest one reaching to the fifth story, measures nearly two hundred feet. At the north end of the pit, two rotary force pumps are located, which in case of fire, can be instantly geared to the main shaft by means of a sliding cog wheel, and are jointly capable of throwing six thousand gallons of water per hour."

The total State debt of Pennsylvania, on December 1st, 1869, was \$32,810,047 90

—The certificate of the Baltimore, Pittsburg and Continental Railroad Company, with two hundred thousand dollars capital stock, was filed at Columbus, March 10. The termini of the road are a point in Middleton Township, at or near the town of Achortown, in Columbiana County, Ohio, at the State line, thence through the counties of Columbiana, Carroll, Stark, Tuscarawas, Holmes, Ashland, Richland, Morrow, Marion, Hardin, Auglaize and Mercer, at or near the northwest corner of Washington Township, at the State line of said county of Mercer.

—The vote in Indianapolis, March 15, upon the proposition to donate \$65,000 to the Indiana and Illinois Central Railroad resulted in favor of appropriation by a majority of 1,465.

THE BROADWAY PNEUMATIC TUNNEL.—We condense from the *Scientific American*: Although the President of the Company is one of the proprietors of the *Scientific American*, the writer of the present article visited the tunnel for the first time on the 8th. The day was stormy, and the snow fell fast and heavy. Cars were with difficulty kept on the tracks. It was a favorable time to contrast the miseries and annoyances of street-car travel with the comfort of tunnel-travel. The simplicity of the principle is not fully appreciated until one sees the thing itself. A cylindrical tube eight feet in the clear, bricked up and white-washed, neat, clean, dry and quiet. Along the bottom is a track, and on this a spacious car, richly upholstered, well lighted, with space for entrance and exit, the whole as comfortable as the front basement dining-room of a first class city residence. The track, not subjected to heavy trucks, is easily kept in first rate condition. It is not cold in winter. It will be delightfully cool in summer. The filthy, health-destroying, patience-killing street dust will never be found. It will be no dirty hole, but a handsome subterranean avenue, through which the people may be rapidly transported to their homes up town.

This system is vastly superior to subterranean steam transit. Its first cost is very much less; it is free from smoke and dust; there can be no accumulation of carbonic acid gas, an evil which may be estimated from the fact that for every pound of coal burned, 3 1-3 pounds, or 293 cubic feet will be generated. The cars will be impelled by compressed air only. The apparatus comprises a stationary engine of 100-horse power, and a Root's pressure Blowing Engine, capable of delivering 100,000 cubic feet of air per minute.—*Railway Review*

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A CARD.

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Also, at the Engineer's office at Richmond, Va., until 12 M. March 10 1870, for several heavy sections east of the Falls of Kanawha, including the unfinished work near Millboro' and that eight miles east of the White Sulphur Springs and the Great Bend tunnel, 6,400 feet; Lewis tunnel, 3,800 feet; five other tunnels from 500 to 1,700 feet long; several sections in rock cutting; and about 70,000 cubic yards of masonry.

Profiles and specifications can be found at the office of the company 54 William Street New York, on and after February 1; at Richmond, Va., and at Charleston, W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia.

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Osgood Accommodation..... 3:10 P. M. 8:45 A. M.
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Night Express..... 10:20 P. M. 6:00 A. M.

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St. Louis and Springfield Express...	2.40 pm	7.35 am
St. Louis and Springfield Express. 10.20 pm	3.42 pm	
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.70 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

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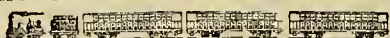
	DEPART.	ARRIVE.
Eastern Express (Erie Railway). 7:00 A. M.	6:30 P. M.	
do do do 9:45 P. M.	7:00 A. M.	
Toledo, Detroit & Canada..... 7:15 A. M.	10:25 P. M.	
do do do 6:30 P. M.	7:00 A. M.	
Lima Fort Wayne & Chicago.... 7:15 A. M.	10:25 P. M.	
do do do 2:30 P. M.	5:40 P. M.	
do do do 6:30 P. M.	7:30 A. M.	
Sandusky, Cleveland & Buffalo... 7:15 A. M.	5:40 P. M.	
Springfield Accommodation.... 2:30 P. M.	10:20 A. M.	
Sandusky, Cleveland & Buffalo... 6:30 P. M.	10:20 A. M.	
Muncie & Indianapolis..... 7:15 A. M.	10:25 P. M.	
do do do 5:00 P. M.	1:20 P. M.	
Hamilton, Eaton & Richmond... 7:15 A. M.	10:25 P. M.	
do do do 5:00 P. M.	10:20 A. M.	
Hamilton Accommodation..... 9:30 A. M.	8:05 A. M.	
do do do 6:50 A. M.		

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For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

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	LEAVE.	ARRIVE.
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Night Express.....	11.35 P. M.	5.09 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

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Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

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Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahouey City, Tuckhanneck, &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:00 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Old Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:40, 2:40, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:40, 7:52, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MARCH 24, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

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Atlantic & Lake Erie Railroad—Extraordinary Mineral Resources of Sunday Creek Valley.

It is well known, that while the South-east of Ohio abounds in coal, iron, salt, etc., the North-western counties are totally destitute. In the midst of these North-western counties lies Toledo, already a large and prosperous city, and destined beyond doubt to be the metropolis of all the region which lies between Cleveland and Chicago. It is, therefore, almost a necessity for Toledo and the adjacent country to make a commercial highway from Toledo to the coal regions. It is almost an equal necessity to open a route through to the Chesapeake country, either by the Baltimore road, or the Chesapeake and Ohio, now constructing. The last is the best. These ideas have been on the minds of the Toledo people on one hand, and of those connected with the Chesapeake road on the other. Hence it is, that an incorporated company has been formed, and the route surveyed for the Atlantic and Lake Erie Railroad Company.

The proposed *termini* of this road are Toledo and Pomeroy. The first is where they have no coal or iron, and the second in the midst of the coal and salt and near the iron section. This road would pass, by this plan, through Fostoria, Granville (Licking county), Straightsville (Perry county), and Pomeroy. On the Ohio river it would connect with Point Pleasant, on the Kanawha, and the Chesapeake and Ohio Railroad.

The surveys are now made, and the entire length of the road will be 230 miles—rather

more than was expected, but makes a very direct route. From Toledo to the rim of the coal region will be about 150 miles, and to the vicinity of Straightsville 180. But, it is well known, that for any distance over 30 miles, it is very slight additional expense to carry heavy freight 30 miles more, or less. The largest part of the expense is in the handling, which takes place at the *termini*.

It is perfectly certain, that if there were at this moment a freight railroad from Toledo to Perry county, the business on it would be immense. Coal from the beds of Perry county may be laid down in Toledo almost, or quite as cheap, as it can in Cincinnati by river; in some seasons of the year cheaper. Boats are loaded at Pittsburg, carried 500 miles and unloaded at Cincinnati, and yet made profitable.

Now, we say, that a properly constructed railroad—with coals and the mines as they are at the surface—coal can be carried from Perry county to Toledo as cheap as it can to Cincinnati. With such a road, coal ought not to cost at Toledo over twelve cents per bushel. To accomplish this, is the object of the Atlantic and Lake Erie Railroad. As railroads are costly, and capital in large sums not always to be had, the plan of making the road, adopted and so far carried out was this: To apportion the cost of the sub-structure or earthwork on the several counties, in proportion to the length of road in the counties, and the benefits derived from it. This plan was pursued, and it was supposed the whole amount necessary had been subscribed. But at the recent meeting of the directors at Toledo, it was found the surveyed route was a little longer than had been anticipated, and it now only remains to secure the additional subscriptions—not great—to insure the commencement of the work. One of the gentlemen engaged in the work says: "it is expected the work will not be delayed long on that, or any other account."

If the map of Ohio be consulted, it will be seen that the Atlantic and Lake Erie has some advantages over any railroad recently planned in Ohio. One is, that instead of running in the general direction of other roads, and thus becoming, in some degree, a rival of them, it goes across them all, and towards the South, where we now most need connections. It crosses the Lake Shore Line—the Pittsburg & Fort Wayne—the Atlantic & Great Western—the Sandusky & Cincinnati—the Cleveland & Cincinnati—the Pan Handle and the Marietta; in fine, all the great railroads of the State. It crosses, in fact, eight distinct lines of railroads, not one of them interfering with it; on the contrary, all contributing to it. This is an extraordinary advantage, which not another railroad in the State possesses.

A second great advantage is, that not another railroad line in the State can be as

great and profitable a coal road as this. Why? simply because there is not another road in the State where the market is so great at one end of the road, and the supply at the other. At Cincinnati there is a great market, but there is the river on one hand, and half a dozen railroads on the other competing for it. Besides, Cincinnati surrounded by coal regions on every side, has, as yet, no railroad leading to such a coal bed as that of Sunday Creek (Perry county), and to that point we call attention, because, to our mind, it seems very extraordinary. In fact, we know of nothing like it. We have before us a statement made by the Great Vein Mining Company, in connection with this railroad. We presume the facts stated are correct, and they are fully confirmed by the Geological Report of 1836, only that much fuller examinations have been made since.

The purchases of the Great Vein Mining Company, of which Mr. P. B. Ewing, of Lancaster, is President, amount to 6,000 acres, which is nearly all situated in the basin of Sunday Creek Valley, in the south part of Perry county. Sunday Creek is a stream emptying into the Hocking River, at or near Athens. The peculiarity of the location, to which we refer, is that it is the only region where the Straightsville seam and the Nelsonville seam are known to exist together. There they are both in perfect development. The straightsville, or Great Vein seam is from 11 to 14 feet thick, and the Nelsonville from 5½ to 7½ feet in thickness; the general average of each being 12 and 6 feet. There are also two other seams laying lower, making a space of about 80 feet in depth, (32) thirty-two feet of coal. We doubt whether there is, anywhere to be found, a coal deposit equal to this so near to the surface.

"A committee (consisting of James Buckingham, C. F. Shaffer and C. T. Brush) appointed for the purpose, after making a personal examination of each track selected, report that 6,000 acres of these lands contain no less than 157,000,000 tons or 3,925,000,000 bushels of available coal. The quantity, in fact, undoubtedly exceeds the estimate."

But, even more extraordinary than the deposits of coal, is the fact that nearly all leading minerals are found there.

We now come to the iron deposits. It will be observed that at Pomeroy and Nelsonville iron is not found.

"There are several seams of iron ore on the greater portion of these lands, ranging in thickness from 6 inches to 3 feet. The committee estimate that there are no less than 80,000,000 tons of iron ore on the lands belonging to the company. These ores are, in many places, found in immediate connection with the coal. They are of several varieties, and practical iron masters say that when mixed they will produce a very superior metal. In consideration of the fact that these lie in the immediate vicinity of coal, which can be used in reducing them at a cheaper rate than perhaps any other place in the United States, their value can scarcely be

estimated. It is not too much to say that the Sunday Creek Valley, and for that matter, the lands owned by this company, contains ores which, if reduced to metal, would exceed the entire iron product of Great Britain and the United States during the last one hundred years—the period of the greatest iron product known in the history of man."

Next in order is the salt:

"The Sunday Creek Valley is in the center of the great salt basin, extending north and south from the sources of the Great Kanawha. The rich salt water of this basin is found in a belt not exceeding 15 to 20 miles wide from east to west, and 100 miles long from north to south, extending about 50 miles north and south of the Ohio river at Pomeroy. By following the plan adopted at Pomeroy, of using waste coal for evaporating, salt can be made as cheap here as anywhere in the country."

Here are the three principal mineral products of economical value in the Valley of the Ohio. But there are others of less importance than those we have mentioned. Among them is a species of cannel shale, said to be peculiar to that region. This is thought superior to marble for the purpose of furniture.

In reference to the transportation of coal to market, the company make the following remarks which we think correct:

"We assume that with a railroad extending from the coal fields to the market, *under one management*, the cost of transportation can and will be so reduced (to the mutual advantage of the railway company, as well as the producer and consumer) that at least in all the cities and villages in North-western Ohio, Northern Indiana, Illinois, Michigan and Canada West, coal can be furnished at prices which will make its use more economical than wood, both for manufacturing and domestic purposes. Not only the cities and villages along the line of the proposed Atlantic and Lake Erie road will be thus supplied, but the several lines of railway which it crosses between Perry county and Toledo will receive and transport our coal to various points on their several lines. With the completion of that road, Perry county coal will have a practical monopoly of the coal market at all points North and North west of Columbus, as well as Canada West, the entire State of Michigan and Northern Indiana; and can successfully compete with the Hocking Valley or any other coals, at all points in Central and Western Ohio, Eastern Indiana and Northern Illinois. From New Lexington we have a line directly west *via* the C. Z. Railroad (recently organized as the Cincinnati and Muskingum Valley Railroad) to Lancaster, Circleville, Washington C. H., Wilmington, Morrow, Xenia, Dayton, Hamilton, &c., in Ohio, and Richmond, Indianapolis, and intermediate points in Indiana. It is in contemplation to construct a railroad (already graded to a great extent) between Washington C. H. and Xenia. This, if consummated, will give us more direct access to the rapidly growing interior cities in Western Ohio and Indiana. By way of the Cincinnati & Muskingum Valley, and the Columbus & Hocking Valley Railroads, our mines are actually nearer to Columbus than those at Nelsonville; and *via* the Atlantic & Lake Erie, and the Baltimore & Ohio or Pan Handle roads, *via* Newark, it is but a few miles further."

Inclined Planes.

SUBURBAN RESIDENCES.

We were very much pleased with an article on this subject in the *Pittsburg Evening Chronicle* of March 7th. It is well known that Pittsburg is surrounded by very steep hills—it is in fact literally hemmed in with them, and that the "spread of empire" like as it is in Cincinnati, is forcing the ever increasing denizens to "fly to the mountains." After giving the history of "inclined plane" transit as operated in the early days of railroading, that is by a stationary engine with a long rope, and double track, one car going down while the other came up (the same as now practiced at Niagara Falls), he then speaks of the method of crossing Mount Ceniz, and the ascent of Mount Washington, as follows:

"The temporary road built over the Mount Ceniz tunnel in Italy, has grades of three hundred and six feet per mile. On the Mount Ceniz road, however, there is laid a central rail, which is gripped by horizontal wheels in the locomotive, so that it is not altogether a "traction" road. The central rail and gripping wheels, has received the name of "Fell's System," but M. de Landess, of the French Society of Engineers, has shown that with certain improvements on that plan, grades of as much as 396 feet per mile can be surmounted by locomotives. Fell's system seems to be regarded as a no very great success by many practical engineers. The friction is undoubtedly great, and it presents no great advantage over the central rail system working with cog wheels; one of the methods of surmounting grades when grease on the tracks was rather an aid than an obstruction to locomotives. Then, again, we might question the expediency of Fell's system of central rail, when we have before us the knowledge that on the Ottoman Railroad, the contractor, Mr. T. R. Crampton, worked on ordinary contractors engine, weighing ten tons, having cylinders of eleven inches in diameter, eighteen inch stroke, with two pairs of coupled wheels, two feet six inches in diameter four feet six inches from center to center, on grades of *four hundred and eighty* feet per mile. Just such engines as are built by Porter & Smith, of this city. It is true, however, in this instance, the road or train-way was only a temporary affair, yet ten thousand tons of material was economically transported over it. On the Vermont Mt. Washington railway the indefatigable Mr. Marsh, formerly of Chicago, has constructed a railroad three miles long to the "Tip-top House," with a maximum grade of 1,790 feet per mile and an average grade of 1,300 feet per mile. His plan differs from Fell's system in having pinion wheels in the locomotive working in a rack, or heavy iron ladder, laid on a central rail. The arrangement of hanging seats in the car body, atmospheric brake, and brake straps on the pinion shafts, with pendants from the locomotive passing under the outside rails to prevent the cars from toppling over with the winds or from other causes, are entirely original and undoubtedly more ingenious and safe than Fell's plan. Marsh's Mt. Washington Railroad is "the steepest grade on record," as the *Clipper* would say.

The writer says that he merely cites those

instances to "show what has been, and can be done upon grades, and to show that as yet no locomotives able to surmount the grades of the hills in this vicinity have been invented, though Mr. Marsh, having made an engine able to climb ladders, might not be afraid to try his plan upon some of them."

In reference to the hills around Pittsburg, the writer says:

"Our hills have generally a slope ranging from twenty degrees to forty degrees, of an angle from the horizon, though at some few points the bluffs are perpendicular. At every place however, where inclined planes have been proposed, the grade of a uniform and well-constructed road, connecting the top direct with the bottom, would be greater than Mr. Marsh's Vermont railroad, a twenty degree slope corresponding to 1,923 feet per mile, and a forty degree slope to a rise of 4,430 vertical feet, if carried one mile."

The method adopted to overcome these obstacles to expansion and virtually to reduce the surrounding hills from an obstacle and a nuisance to a convenience and a material sanitary benefit, is described as follows:

As far as our own knowledge and inquiry extends, we must give the preference of plan for constructing and safely working inclined planes as that adopted on our Mt. Washington road, now building. Mr. Endres, the company's skillful engineer, seems to have left nothing out of his calculations looking to strength and safety in the first place, and economy in the next. A simple description of that incline, seeing that it will likely be adopted in most, if not all of its features, by the other companies now proposing to construct incline planes, will not be out of place.

The road reaches from the base of Coal Hill, starting a short distance below the Birmingham suspension bridge, to the top of the hill in Mt. Washington village. The incline is thirty-five degrees, equivalent to a grade of 3,700 feet per mile, or a rise of one foot in one foot and four-tenths. The length of the incline is 670 feet, and the height surmounted is 333 feet. There is a double track, with two engines at the top of the incline, with cylinders twelve inches in diameter, twenty-four inch stroke, two boilers, each twenty-five feet long by forty-two inches in diameter. The cars will be let down and drawn up by means of wire ropes one and a half inches in diameter, coiled on drums eight feet in diameter. Such ropes are calculated to withstand many times the weight they will ever be called upon to sustain, but, in addition, there will be a separate safety rope attached to each car, working over sheaves, which would immediately stop them should anything happen to the working cable. The cars have a very peculiar construction to fit upon the grade—the floors, or decks, having an angle to the track, so as to be at all times level, corresponding to the angle of the incline. The entire arrangement of the tracks, and the details of plan and workmanship are such that no accident can be foreseen as likely to happen, either by carelessness or neglect of the operatives, and so that any person can satisfy themselves of their entire safety at any time.

If the projectors of inclined planes will make it an object to have them pay only by the increased value they will add to their vacant lots on the hill tops, they will undoubtedly prove financial successes. The least

tolls that will pay their ordinary working expenses, will, in this way, prove to be the best. In not many years we may hope to hear of the prosperous towns, which will owe their existence to inclined planes, making them free to every person as our bridges should have been declared long ago.

Street Railways in London.

Projectors of street railway or "tramway" lines fare hard in London, as has ever been from the attempts of the vociferous Train even unto the present. *Engineering*, of February 11, gives an abstract of a report made by the "Chief Surveyor to the Vestry of St. Pancras," in which the granting of franchises to companies to construct such lines is decidedly condemned, and their building under the supervision of a "Metropolitan Tramway Board" as pertinaciously advocated. Another recommendation is, that the drivers and conductors should be licensed constables, armed with the power of the law to enforce order in the cars and to make drivers of other vehicles "get out of the way."

The chief reason for denying the right to lay tramways in the British capital seems to be that they will take the passenger-traffic from the omnibuses, and that they will make money for their owners. The first proved futile in the case of railway lines, and may not turn out of eternal importance in the present case; the last would seem to be a very good reason why such lines should be built, inasmuch as no profit can be made unless advantages are offered that the public will be willing to pay for. The surveyor says, however, that it is possible to devise and carry out a comprehensive system of tramways, so that the community at large may reap all the advantages—this, of course, to be managed by the Metropolitan Tramway Board afore-named.

We can hardly understand how a system that, with all its faults, has worked so well in this country, should be so disapproved abroad. From the scheme above indicated, however, we are led to infer that the conditions are quite different; for example, that in England the interests of omnibus owners are of more importance than those of men who are willing to invest their money in providing cheaper means of transit; that "boards" are not, as they are here, subject to suspicion of corruption or mismanagement; and that the conductors and drivers of "famous London town" will be a very different class of men from those exercising the same functions in our gridironed city of New York.

[*American Artisan.*]

✂ A brass door, weighing 1,456 pounds and costing \$850, has recently been manufactured in England for the Wolf Rock Light-house, and it is intended to replace a solid oak door four inches thick, which had been shattered into fragments by the force of waves.

—A telegram concerning the Kansas Pacific Railroad says: The track-layers are in sight at Pike's Peak. They have reached its first station about 16 miles from Kit Carson, giving us about 65 miles of new track. This puts us 470 miles west of Kansas City.

—Munson & Co., contractors, have attached the Hartford & Erie Railroad for \$1,500,000 for work done. The announcement of this proceeding caused a decline of the stock to six and one-half per cent.

The Erie-English War.

JAY GOULD AT ALBANY.

Jay Gould appeared before the Senate Railroad Committee, in Albany, March 23, and made a statement in opposition to Mr. Burt's argument repealing the so-called Erie bill. He claimed that the real clients of Burt are two Jewish bankers, Heath and Raphael; that the money to carry on proceedings was obtained by coercion and fraud, and that Burt represents only six millions of Erie stock, a small minority, and that letters have been received from London stockholders, protesting against the proceedings of the committee. He (Gould) and another gentleman own two millions Erie stock which they are carrying in London, and were compelled by the resolution of the London Stock Exchange to have it stamped, and pay a shilling per share to Burt's committee to fight themselves. Now that committee propose, by another resolution to compel registration of all Erie stock in London in the names of Heath and Raphael, in order to make it a good delivery. This would condense into the hands of two gentlemen the entire voting of the Erie stock, while it is actually owned by 2,000 individuals. Of the stock, Heath & Raphael need not own one dollar. The bill would prevent the control of the road passing into the hands of inexperienced men, or of the Pennsylvania Central and New York Central Companies. Gould continued by saying Burt's statements before the Senate Committee conflict with his previous statements. Burt had been offered every facility to examine the company's affairs, but refused to hold any intercourse with the Erie Directors, until the demands of Raphael & Co. were fully satisfied. Subsequently, however, he asked an interview with Gould, at which, after complimenting Gould and Fisk as two of the ablest railroad managers in the country, and stating his wish that they should remain in the office, he demanded the nomination of twelve of the seventeen directors of the road, and hinted at his own nomination as treasurer. Gould goes into a detailed history of the Erie Railroad since he and Fisk took charge, and concludes by urging upon the Senate Committee not to legislate for the improvement of the revenue of the canals at the expense of railroads, but to let well enough alone.

George Grinch, an Anglo-American stockholder, addressed the Committee. He owned 5,000 shares of stock in England, and represented the shares of a number of correspondents who protest against the scheme of which Mr. Burt's clients are prime movers. Messrs. Gould & Fisk, he said, claim to be in possession of the proof furnished by their agent in London, that the members of the so-called Erie Protective Committee are mere agents of a gigantic conspiracy formed by a union of interests of the Pennsylvania Central and New York Central Railroads, to crush out the Erie as a competing line. He (Crouch) concurred in Fisk's expression that Raphael and Heath have gone in on a whirl of speculation. They are all one make, and are going in for what they can root out, and said Fisk was also right when he prophesied Vanderbilt's English agents would not make enough to pay for court-plaster to cover the raw snoots which the rooting process would inevitably cause on their respective snoots. He (Crouch) spoke in the interest of two millions of Erie stock, owned in England, and fully indorsed the present managers of the road.

The Broadway Pneumatic Railway.

We lately enjoyed the pleasure of a promenade in connection with Broadway, different from that celebrated in song, this being not only down, but under Broadway. We passed, in fact, on that occasion, through the tunnel, as far as completed, of the Beech Pneumatic Transit Company. This tunnel, which is about eight feet, starts on Warren street, at the corner of Broadway, and by a curve of wide sweep passes under the center of the renowned highway, down which it proceeds in a perfectly straight line. The curved portion is lined with an ingeniously combined sheathing of iron segments, the straight portion forms a continuous cylinder of brick work, brightly illuminated at the outset by glass lights in the pavements, and further on by a continuous series of gas lights. This tunnel quite fails to impress us with the idea of its *subterranean* character. A partly-finished passenger car, of elegant construction, stood upon the track, which supported on curved iron cross-ties runs through the entire length of the excavation, and with its commodious seats and prettily-finished wood work, presented a most inviting appearance. The outline of the car, like that of the tunnel, is cylindrical, the wheels being placed under the seats, and the height in the middle being about 7 feet, the accommodation in entering and going out is all that could be required. Passing to the end of the excavation, we next examined the means by which the work was carried on. These means we will endeavor briefly to describe. A cylinder of boiler plate some twelve feet long, and of the same diameter as the tunnel, including the brick lining, is provided, at its rear end, with a strong ring of cast iron, to which are attached eighteen small hydraulic rams, each capable of exerting a force of seven tons, and bearing upon another similar ring of cast iron abutting on part of the tunnel already finished. These rams are all connected with one driving pump, but are individually controlled by stop-cocks. The pump, then being worked, the iron cylinder is pushed forward, like a saddler's punch through leather, or a wad cutter through card. If, by reason of unequal resistance, it tends to go crooked, some of the presses on the advancing side are shut off and the direction is thus regulated. Besides the forward portion of this cylinder already described, there is a short piece reaching some eighteen inches back of the heavy ring. When then the cylinder has been pushed forward a certain distance, the hydraulic rams are closed up, the rear ring is pushed forward and a course of brick-work is added to the tunnel, lining inside of the rearward projecting cylinder. At the next forward motion of the same, this new ring of brick-work is exposed, and the earth around settles against it by the thickness of the cylinder, which is three-sixteenths of an inch. To prevent the caving in of loose materials in front, a number of horizontal shelves are set across the forward part of the cylinder. Thus the excavation and building are carried on simultaneously, without a moment's exposure of any portion of surface without support. In the basement of the building were to be seen, amid masses of excavated boulders, bricks, mortar and various materials and debris, the massive members of machinery to be used in supplying the air blasts by which the cars and their passengers are to be wafted through the subterranean corridor.

James River and Kanawha Canal.

After the completion of the Pacific Railroad, there is no one subject of internal improvement of such vital importance to the people of the whole country as the construction of the great work of connecting the navigable waters of the Mississippi with those of the Atlantic. But for the purpose of giving a clear understanding of the matter, we give entire the following:

To the Cincinnati Chamber of Commerce:

It, perhaps, devolves upon your delegates to the National Board of Trade, to call your special attention to the action of that body in respect to the James River & Kanawha Canal project, and submit some suggestions for your consideration which will bring that important undertaking more prominently, not only before the business men of this city, but before the public at large.

The final action of the National Board of Trade was embodied in the following resolutions, which constitutes the conclusion of a report upon the subject made by a Special Committee of the Board.

Resolutions adopted by the National Board of Trade, at the Meeting held at Richmond, Va., December, 1869.

Resolved, That cheap transportation for the products of the interior of the country, is not only a necessity, but is demanded by the highest considerations of public policy.

Resolved, That to secure it, additional, direct and continuous lines of water communications are imperatively needed, and should be provided, between the Mississippi River and the Atlantic seaboard—not only as a means of freightage, but in order that requisite competition may be maintained between transportation lines.

Resolved, That as one of these means of water communications, the route to be afforded by the James River and Kanawha Canal, if extended to the Ohio River, as proposed, has special prominence.

Resolved, That the work necessary for the completion of this Canal, on the scale deemed essential for its great object, is demonstrated by eminent engineers to be practicable of early completion and feasible.

Resolved, That such a work would be national in its character, and entitled to receive national aid, to secure its completion at the earliest possible period.

Resolved, That in order that it shall enure to the best interests of the country, all private and corporate proprietorship in it should be removed (which removal should be a condition precedent to the grant of aid by the General Government), and when the cost of construction, as represented by the outlay of the State of Virginia and of the nation, shall be fully reimbursed, that the commerce conducted on the Canal, shall be subjected only to such tolls as may be necessary for its repairs.

Resolved, That the Executive Council be directed to memorialize the Congress of the United States, in reference to the subject of extending aid by a loan of its credit, to stand as a first lien on the work, to the James River and Kanawha Canal project, as herein set forth, praying its consideration at an early day.

Resolved, That the Executive Council be directed to suggest in the memorial to Congress, that the prosecution of the

work and the management of the property, when it shall have been completed be committed to a Board of eleven Trustees, one of whom shall be appointed by the President of the United States, one by the State of Iowa, one by the State of Missouri, one by the State of Arkansas, one by the State of Illinois, one by the State of Indiana, one by the State of Kentucky, one by the State of Ohio, one by the State of West Virginia, one by the State of Virginia, and one by the State of Maryland; and that the work be prosecuted under the direction of Government engineers.

MEMORIAL OF THE STATE OF IOWA.

The first introduction of this subject to the attention of our Chamber of Commerce, was through a Memorial of the Legislature of the State of Iowa, which contained these words: "That the great want of that State, is cheap transportation for its heavy products to the markets of the world. That the most feasible plan to secure this end, is to provide a direct and continuous line of water communication between the Mississippi River and the Atlantic Ocean; in a latitude favorable to the safe carriage of grain in bulk, and yet comparatively free from obstructions by frost." And, "That such communication, they believe, could be secured most readily by the Ohio, Kanawha and James Rivers to Norfolk, Va." And then, after submitting to the consideration of Congress, an array of facts and arguments, demonstrating the vast importance, especially to the West, of the proposed water line through Virginia, the memorial concludes as follows:—"This is a work of great national importance; its benefits will be shared *directly* by more than half the people of this country, and indirectly by all. It is a work to be done by the whole country for the benefit of the whole country—It belongs to the government of the United States." Nothing need be donated—an advance *upon good security*, for the return of principal and interest, is all that will be necessary. Not only will the advance be returned in kind with the interest, but the benefits of each year will return the outlay more than five-fold. Instead of increasing our national burthen of taxation, it will so increase the means of payment as to greatly lessen it."

The necessity of a convention of representatives from all the Cities and States interested, was urged with great force. But before proceeding to ask a co-operative movement of the Cities, Towns and States, as invited in said memorial, it was thought best by the friends of this movement, to obtain from an authoritative source, a carefully prepared and reliable statement, setting forth the history, character, description, progress and condition of said improvement; its feasibility and capacity, with a comparison in every respect with all other lines of communication to and from the West and the seaboard, with respect to safety, quickness, regularity and cheapness, with all the other advantages to be derived from the completion of said water line, direct and incidental. To this request the James River & Kanawha Co., have responded by causing to be prepared and published a pamphlet, by a gentleman eminently qualified for the task, setting forth an array of facts and arguments, which must command attention as to the proper development of the West especially, and to the prosperity of the whole country, of the speedy completion of the proposed central water line, connecting the Atlantic with the Mississippi Valley. * * *

In this pamphlet is also embodied the report of E. Loraine, Chief Engineer of the Company, a gentleman of high character, and eminent in his profession. This report is character-

ized by a candor and fairness of statement which, does not pretend to conceal the expenses, difficulties and obstacles of the undertaking, but admits and meets them, fairly and squarely—a fact commending it to the confidence of the public, both for its scientific ability and for the integrity it displays * * * * *

The light thrown upon the history and character of this great enterprise, and of the great benefits to flow from its completion to the whole country, and especially to the great West, would seem to justify the strong language of the Iowa Memorial, that it will furnish a cheap and truly valuable line of transportation from the East to the West, and besides the immense advantages to the commercial and manufacturing interests of the East will be a vast saving to the West in transportation alone.

LOCATION AND CHARACTER OF THE WORK.

The proposed water line through Virginia will connect the Ohio river from the mouth of the Great Kanawha, 284 miles below Pittsburg, with the Atlantic seaboard, at or near the mouth of the James River, by an aggregate distance of about 611 miles.

Commencing on the Ohio river, at the mouth of the Kanawha river, the first 90 miles of navigation is to be made by deepening the channel of the latter stream, where necessary, so as to give a depth of six feet water at all times, and sufficiently wide for steamers towing barges; thence 119 miles further, ascending Kanawha, New, and Greenbrier rivers, by lock and dam; the locks 200 feet long and 40 feet wide, and the depth of water, both in the locks and in the channel, to be at all times 7 feet—this portion, also, to be navigable for steamboats and barges, or canal boats. Having reached the point 208 miles from the Ohio, the canal proper commences, and continues through the Alleghany Mountains to Richmond, about 275 miles, where it looks down into tide water; thence by the James river, about 125 miles, to Newport News, where, or at Norfolk, or at some other place in that vicinity, ocean navigation will be reached.

The canal proper is to be 70 feet wide at the water line, 42 feet wide at the bottom, with 7 feet depth of water, and with locks 120 feet long and 20 feet wide, with capacity to pass boats of 280 tons burden, or one-sixth greater capacity than the Erie canal, as enlarged.

The practical capacity of the canal proper, with its locks, will, it is claimed, exceed fifteen millions of tons per annum. The balance of the water line will be of much greater, and comparatively of unlimited capacity.

The distance from the waters of the Greenbrier river, running west, from the point where the canal leaves it, to the waters of the James River flowing east into the Atlantic, where the canal strikes that stream, is from 28½ to 33 miles, as the longer or shorter route may be determined on. Reaching the waters of the James river at the eastern base of the main ridge of the Alleghanies, the water line follows that stream to the Atlantic seaport, which, whether it be at Norfolk or Hampton Roads, will have the best harbor and outlet on the Atlantic.

With this improvement completed, the commerce of the Missouri, the Mississippi and the Ohio rivers, with their many tributaries, will have an excellent highway to the sea in desirable competition with those now in existence.

Over the Northern water line, it will always have the advantage of being free from obstruction by frost, for at least four months of every year, and at the time when most needed.

In the language of the writer of the pamphlet referred to, "it offers a channel of navigation from the West to East shorter than any other, cheaper than any other, more expeditious, and more free from all obstructions arising from climate or a public enemy, than all the rest. Its only rivals in capacity for Western trade, are the Mississippi and Gulf route on the one hand, and the great Lake Erie and St. Lawrence route on the other, both of which are circuitous, while this central one is direct. Both of the other routes take American produce out of the Union, in transporting it from one part of the Union to the other, subjecting it to the dangers of war; and while one subjects our National products to the damaging effects of a semi-tropical climate, and the hazards of gulf and coast navigation, the other renders it liable to be seized and held for months by the ice, or wrecked and lost by the lake storms.

More than 25,000,000 tons of freight per annum it is computed, now passes over the various lines of transportation, back and forth, from West to East, and from East to West, which at a saving of only \$1 reduction per ton, will make an aggregate of *one hundred and twenty-five millions of dollars annually.*

The increased facilities and greatly-cheapened transportation to be secured by this improvement, will not only ensure to the benefit of the great agricultural interest of the West, but its advantages must be largely shared by the commercial and mining interests of the whole country.

Besides the special advantage to the West, and the general benefit to the whole country, in cheaper transportation of merchandize and produce, there is also an advantage to result from its construction, from the character of the productions of the country through which it passes, that can hardly be over-estimated. It passes through the heart of the Kanawha mineral region which so richly abounds in iron, coal, salt, etc. The value of the coal in this field would alone almost justify this work.

The pamphlet referred to, says, concerning

THE GREAT KANAWHA COAL FIELDS

of West Virginia, that they are superior to those of Great Britain or Pennsylvania. They are regarded by eminent geologists as the *finest deposits of coal in the world.* The quality of the Kanawha channel coal is equal to the best English channel; the quality of its bituminous coal is equal to the best found in Pennsylvania; and the Kanawha splint coal for smelting iron ore is unsurpassed. The veins lie horizontally and vary from three feet to fifteen feet in thickness; and the aggregate thickness of the various veins in some localities amount to forty and even fifty feet of solid coal." A prominent advantage claimed for the Kanawha coal fields over those near Pittsburgh, is that the Kanawha coal fields contain as good bituminous coal as the best found in the Monongahela and Youghiogheny, and in addition thereto, large deposits of cannel coal, equal in quality to the finest English channel, none of which is found in the Monongahela coal fields.

The channel coal of the Kanawha region reported to be fully equal in quality to the best coals of England and Nova Scotia, is so valuable that even now under the greatest disadvantages, it is sent out of the Kanawha river to the Ohio, thence down through the Ohio and Mississippi by New Orleans and the Gulf, around to New York, and sold at a profit, bringing about three times as much per ton as anthracite in that market.

But it is to the West, and especially to the Upper Mississippi and Missouri region that the greatest benefit is to be derived. Vessels which have gone from the great rivers of the West up into the Kanawha river freighted with produce for an Eastern market, will, when their cargoes are discharged into the canal boats, be empty and wanting return freight; this the coal, the salt, the iron and the lumber of that region will give them, and they will be able to bring back bituminous, splint and canal coal, all of the very best quality, and discharge along the great rivers.

HOW CAN THE WORK BE DONE?—HOW SHOULD IT BE DONE?

The Company for the construction of this work have already expended twelve millions of dollars. Their means are exhausted, they can do no more. They can only offer their work as a basis of credit for the amount needed for its completion. By a loan of government bonds for the purpose the work can be accomplished speedily.

SHALL THE GOVERNMENT DO THIS?

The answer to this question should be determined by the assurance of the entire practicability of the work. To ascertain this, a corps of Government engineers should make a survey of the whole route. If their report confirms the statements herein made, and fully establishes the feasibility of this work, at a cost not exceeding the benefits to be derived, and the security of a first mortgage to the Government for a loan of bonds, or an endorsement of the bonds of the Canal Company be sufficient; then, in that event, we feel that the request of the people of the West for the aid of the Government is reasonable, and should be acceded to.

WHEREAS, The States of Virginia and West Virginia, and the James River and Kanawha Canal Company, represent that they are prepared to surrender their valuable franchise in the James River and Kanawha Canal Route, on condition that the National Government will open the projected route from the Ohio River to tidewater; and,

WHEREAS, The opening of this channel of communication with the Atlantic ocean, if demonstrated to be feasible, would afford another outlet to a market for the surplus products of the West, and cheapen transportation through healthful competition with other routes to the seaboard, and thus add to the home value of the cereals and other industrial productions of the West; therefore, be it

Resolved, That the Governor of the State of Ohio be requested to call the attention of the Legislature of this State to this project, by special message, presenting the importance of increased facilities of transportation to the seaboard, and requesting the legislature to memorialize Congress to order a thorough survey of the proposed canal route by competent Government Engineers, and the publication of their report as to its practicability and probable cost; and that he be also requested to solicit, through official correspondence, the co-operation of the Governors and Legislatures of the States of Kentucky and Indiana in this movement for the survey of the proposed route by a corps of Government Engineers.

Signed:

JOHN A. GANO,
JAMES F. TORRENCE,
THEO. COOK,
WM. HOOPER,
S. LESTER TAYLOR, } *Committee.*

Erie Railroad.

In the adoption of all the inventions and improvements that conduce to the safety and comfort of the traveling public, at whatever cost to themselves, the Erie Railroad management stands first and foremost. They were among the first to purchase and lay down the steel rail, in place of the iron one, thereby to a very great degree, preventing accidents to trains, other than by collision. Early in 1869, they commenced running through trains between this city and New York, the passengers in every car retaining their seats until landed at either end of the line. Not long since they placed upon their trains the Palace Coaches, in which secured seats are furnished free by the agents to all purchasers of through tickets.

But their latest achievement in the way of traveling comfort is a new line of through sleeping cars, placed on the road about three weeks ago, and which now accompany all trains from Cincinnati to New York. Some idea may be formed of the magnificence of these cars by the fact that each cost over twenty-three thousand dollars. They were built by the Erie and Atlantic and Great Western Sleeping Car Co., at their works in Jersey City. These cars are heated by hot water pipes, running along the base of the sides, and under the seats, and are lighted by gas, generated from gasoline, contained in small iron tanks beneath the car. The gasoline used is non-combustible, and the light produced is clear, steady and brilliant. The cushions and backs of the seats are of fine plush velvet, on spiral springs; the mattresses of hair, weigh thirty-two pounds each, with

spring bottoms; the sheets and pillow slips are of the whitest linen, the covering of the softest flannel; and the curtains of silk and damask. All around the sides are panel oil paintings of merit and beauty, with medallions in *alto relievo*, of celebrated historical characters, ancient and modern. The wash rooms and closets are equal to those of a Fifth Avenue Mansion in their convenience and elegant fixtures. Each car is provided with staterooms, and the cost of berth and section to the traveler is no more than was formerly charged for the old style of accommodation. In a trip to New York we can think of nothing more to be desired by the healthy mind than a through ticket in one of these traveling palaces on the Erie & A. & G. W. Railway.—*Cincinnati Commoner*, March 19, 1870.

Railroad Items.

—At the annual meeting of the stockholders of the Northern Pacific Railroad, held in New York, March 9, the following Directors were elected: J. Gregory Smith, St. Albans, Vt.; Richard D. Rice, Augusta, Me.; Thomas H. Canfield, Burlington, Vt.; William R. Ogden, Chicago; J. Edgar Thompson, Philadelphia; George W. Cass, Pittsburg; W. G. Fargo, Buffalo, N. Y.; Benjamin P. Cheney, Boston; Frederick Billings, Woodstock, Vt.; Wm. Windom, Winona, Minn.; Samuel L. Felton, Philadelphia; Charles B. Wright, Philadelphia; Jas. Stinson, Chicago. The board was organized by electing J. Gregory Smith, President; R. D. Rice, Vice President; A. H. Barney, Treasurer; Samuel Wilkeson, Secretary.

—A Tribune dispatch, from St. Paul, announces that a contract for the negotiation of fifty million dollars of Northern Pacific Railroad bonds has been concluded with a leading German banking house, half a million to be advanced immediately, and that the Northern Pacific and Lake Superior & Mississippi Companies have made arrangements to establish large mills at Duluth, Minn., for the manufacture of railroad iron.

—The Ways and Means Committee of the New York Legislature has agreed to report in favor of an appropriation to the Oswego and New York Midland Railroad of \$1,000,000 now, and, when eight miles more of the road are completed, \$500,000; also, to the Whitehall and Plattsburg Railroad \$300,000 when the road is completed.

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6-1-70, 17.

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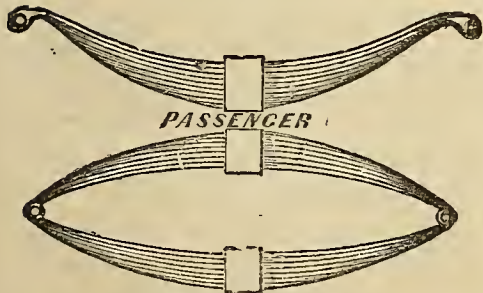
7-10-9, 13.

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Profiles and specifications can be found at the office of the company 54 William street, New York, on and after February 1; at Richmond, Va. and at Charleston W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia.
C. P. HUNTINGTON,
President.

27-1-70. 4.

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Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	7:15 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo...	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo...	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond...	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:45 A. M.
do do do	.....	6:50 A. M.

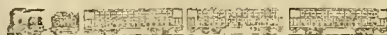
Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omni-buses call for passengers.

The Old and Reliable Route.



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THE PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburgh, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

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SHORT-LINE RAILROAD.

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THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7:35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Sup't. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckahoe, &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:30 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:30 a. m.—12 m., 1:10, 2:30, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:22, 7:40, 8:30, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 525 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MARCH 31, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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Railway Reform.

For some years the people of the State of Ohio have fretted and chafed under the constitutional restriction that prevents them from aiding public improvements by townships, counties, or any municipal organization, and they have been seeking all sorts of ways of relief; but so carefully worded is the law, that it has been found difficult to do, and they were about settling down and submitting to this crippling law as well as they could, until the time arrived when the Constitution of the State is to be referred again to the people.

During this time, valuable enterprises must languish, for want of local aid, and capital and active men pass away from our State to other sections of the country, where the united interests of the people were made use of to promote the great works of improvement.

In this depressed condition, the subtle brain of a Cincinnati lawyer, stimulated by the demands of that city for a great thoroughfare Southward, struck out the idea that the law did not forbid cities, counties, &c., from building and owning such improvements, and at once fixed up a bill that seems to meet the emergency.

The history of what is known in this State as the "Ferguson Bill," needs no reviving at our hands. It is fresh in the minds of the people, and we believe every day adds largely to the list of its advocates throughout the State.

The people saw, or thought they did, a relief from the long oppressions under which

they had labored, and were quick to seize it, and are now asking the Legislature of Ohio to make the Ferguson idea so general as to allow the smallest, as well as the largest, civil organizations to engage in such improvements as they may deem for their welfare.

The extent of this interest on the part of the people is evidenced by the raid made on the Senate Committee during the past week. Leading men from all parts of the State have been urging the Committee to report favorably; and the Senate to pass the "Griffith's Bill," that has received the sanction of the House.

We don't exactly know why the Committee or the Senate need all this persuading to do what is so earnestly demanded by the people, but we suppose it is the doubt upon the legality of the measure. Upon this the opinions of some of the ablest lawyers of the State have been given, and a large majority of them agree that the bill is constitutional.

The Legislature, or the Committee, can hardly afford to ignore these views, or set their own against them. If they are so inclined, we refer them to the second speech of John C. Breckenridge upon this question, delivered before the Kentucky Legislature a few weeks since. There they will find the whole subject legally considered, and fortified by an array of authorities that Judge Caldwell signally failed to overthrow, and that, we think, the Senate will find quite convincing and soothing to its conscience.

The Senate will undoubtedly be acting wisely to grant this pressing necessity of the people, and allow them to bring the question to a test before the highest judicial tribunal of the State. This, indeed, they will have to do before the bill can be available to them in any extensive operation, and this they are anxious to do, that they may know just how they stand in this important matter, and what further movements to make, in order to keep up with the enterprising spirit of adjoining States.

We ardently hope, therefore, that the Legislature will not adjourn until this measure has been passed upon, and that it will not be pushed aside and parliamentaried away until it is too late to act intelligently upon it, and it be suspended until the next session.

There is no question pending before that body in which there is a more general interest and more earnestly desired. A season lost, in the present state of affairs, is not to be easily regained.

There is a general revival in such projects as the people desire to aid, and they ought to be permitted to engage in them during the flood tide, and not cast into a period when events may render the undertaking more difficult if not impossible.

If our people once move under some en-

couraging law of the kind proposed, they will find the way to overcome all the obstacles that way arise in their progress—"where there is a will there is a way"—and what the people demand is the law, and their servants, the Legislature, ought not to hesitate a moment to give it expression.

The Baltimore, Pittsburg & Continental Railroad.

Since the completion of the Pacific Railroad, no road has been proposed which promises so grand a future as the one whose title is at the head of this article.

Heretofore railroads were made principally in reference to local trade. Often, for the sake of reaching some county seat or important village, not only much distance, but heavy grades were encountered; the consequence is that, after the road is built, it is found unsuited for through trade and travel, which, in a country so large as this, is of the greatest importance.

Not so with the Baltimore, Pittsburg & Continental Railroad. Disregarding local interests, and with an eye single to obtaining the shortest route and lowest grades, it has been projected through the center of the continent, and fortunately, now that the road has been surveyed and determined upon, it is discovered that it will also be of great local advantage to the sections through which it passes. In fact, if the road had been selected with special reference to developing the mineral and agricultural wealth of the State, by bringing the supply and demand near together, no better route could have been found.

In the vicinity of Nashville, in Holmes county, is an inexhaustible supply of stone coal of the best quality (heretofore undeveloped). From Bellville east eight miles to Newville there is more building stone than can be used for centuries. Nature has graded the route so well that no east and west road between the Lake and the Ohio river, except, perhaps, the Lake Shore road, has nearly so low grades, and in distance between Omaha and Pittsburg and the seaboard cities of Philadelphia, Baltimore and New York, no existing route is so short by many miles.

For the information of those who have not paid attention to the subject, I would state that the Baltimore, Pittsburg & Continental Railroad is to extend from Pittsburg to Lafayette, in Indiana, and is the last great link in a chain of roads which, when completed, will extend from Pittsburg to Omaha, on nearly an air line, and with lower grades than any now built, or that can be built between those two points.

W. P. M.

By reference to a map it will be seen that this is a splendid line, and passes through a belt of country not well supplied with an east and west outlet.

The connections made by this line at its termini are very valuable, as at Pittsburg and Lafayette roads ramify in every direction.

From what we know of the country through which it is to pass, we believe the grades will be very favorable for an extensive traffic, and the cost of construction low as that of the valley lines of the West.

But we incline to the belief that its West-

ern terminus should be Logansport, and not Lafayette. At Logansport it would intersect a cluster of roads, as varied in their direction as at Lafayette, and by taking this line the section of country not now supplied with such a road would be more equally divided.

The line from Pittsburg to Lafayette, if direct, as is proposed, would be too far South, and for a great part of its length run parallel and near the roads already in existence.

From advices received from different counties in this State, through which the surveys for this road are going on, we learn that there are three routes under consideration, the most northerly passing north of Marion, Kenton, St. Mary's and Celina, and within about twelve miles of the P., Ft. W. & C. road. The second or intermediate route almost, if not quite, an air line, passing through Marion, Kenton, Wapakonetta, St. Mary's and Celina, and making the Indiana State line in Washington township, Mercer county. The Southern line would leave these points about fifteen miles to the north; and in this connection we have also learned that the middle or intermediate line is eighty miles shorter than either of the others.

If the object of this work is to obtain the shortest line between Omaha and Baltimore, then it seems to us any leaving southward of Logansport must be at the expense of distance.

At Logansport direct connection is made with Omaha, and also with Burlington, Iowa, and by the new road, the Burlington & South-western, now in process of construction, from Burlington to Ellsworth, with the Kansas Pacific road.

The scheme thus considered is certainly all that the *Gazette's* correspondent claims for it, and will be, if made, one of the most productive thoroughfares in the country.

The Reliable Knickerbocker.

This life office has been eighteen years in operation, and has built up a business second to none in extent and equal to any in permanence and profit.

The year 1869 finds it with an income of \$5,041,924—policies in force 22,078—securing \$68,569,268—dividends \$513,410, and assets \$6,680,906.

The business of the year 1869, shows a continued prosperity, 9,946 policies were taken, insuring \$25,354,646. And what is very commendable to the management, the ratio of expenses to income was reduced to 14.52.

Considering the time when this company went into operation, and the many obstacles it had to encounter during its early years, this exhibit speaks volumes for the skill of its direction, and commends the organization to the confidence of the public.

The Bankers of the World.

The Merchants and Bankers' Almanac, for 1870, in one volume octavo, 240 pages, price two dollars; contains: 1. List of 1650 National Banks; location, names of President and Cashier of each; capital and name of New York Correspondent, of each. 2. List of 300 State Banks in operation; names of President and Cashier of each. 3. Names of 1800 Private Bankers and Savings Banks in the United States and Canada, and name of New York Correspondent of each. 4. Names of 1800 Bankers and Brokers in New York City. 5. Monthly prices of Cotton, Wool, Corn, Sugar, Molasses, Tobacco, Coffee, Wheat, Oats, Rye, and Flour, for forty-three years, (1825—1869,) and crops in 1868. 6. Names of New Marine, Fire, and Life Insurance Companies, in each State. 7. Daily Price of Gold in New York, from January, 1864, to December, 1868. 8. Progress of Railroads in the United States and in each State, from 1835 to 1869, number of miles, cost, etc. 9. The Cotton Crop of the United States, 1860 to 1869,—annual product of each State, export, consumption, etc. 10. The monthly prices of eighty staple articles, at New York, year 1869. 11. Alphabetical list of 2000 Cashiers in the United States. 12. List of 1000 Bankers in Europe, Asia, South America, Australia, West Indies, etc. 13. Lowest and highest prices of leading Government, State, Bank and Railroad Shares, Bonds, etc.—years 1868-9. 14. The Clearing House, New York, annual exchanges, 1854-1869,—Officers, 1869-70. Statistics of immigration; Table of income and expenditure of the U. S. Government. 16. Monthly Statement of the Public Debt of the United States, July to December, 1869. 17. Imports, Revenue, Public Debt, etc., of Great Britain, 15 years. With engravings of new Bank Buildings, and SEVEN STEEL-ENGRAVED PORTRAITS of eminent merchants and Bankers.

CHESAPEAKE AND OHIO RAILROAD.—In the Virginia Senate, on the 7th inst., in response to the resolution of Mr. Pendleton "inquiring into the terms of contract entered into between the president and directors of the Chesapeake and Ohio Railroad Company and C. P. Huntington and others for the transfer of the franchise and property of the Virginia Central and Covington and Ohio Railroad," reported "that they had examined the terms of the contract entered into between the president and directors of the Chesapeake and Ohio Railroad Company and C. P. Huntington and others, of New York, (a copy of which contract in full is submitted with this report for the information of the Senate,) and that they are of the opinion that the contract is a valid agreement between the parties competent to make it."

The committee respectfully request to be relieved from any further consideration of the subject. The report was concurred in.—*Am. R. R. Journal.*

Railroad Companies not bound to keep open their Ticket Office beyond the time fixed for the departure of trains—Principle upon which they may discriminate fares.

[From the American Railroad Journal]

The facts necessary to an understanding of the question in the late case of The St. Louis, Alton and Terre Haute Railroad Company vs. South (13 Ill., p. 176,) are fully and clearly stated in the following opinion by

BREESE, J.—The principal questions in the cause arise upon the instructions given on behalf of the plaintiff, and on those refused as asked by the defendants, the appellants here, and on the measure and amount of damages, the former of which we will notice.

The first instruction asked by the plaintiff, and given, was this:

"It was the duty of the St. Louis, Alton and Terre Haute Railroad Company to furnish a convenient and accessible place for the sale of tickets for passengers, with a competent person in attendance ready to sell them, which should be open and accessible to all passengers for a reasonable time before the departure of each train, and up to the time of its actual departure; and if the jury believe from the evidence, that the plaintiff, by and through Allison, made application at the ticket office of the St. Louis, Alton and Terre Haute Railroad Company, at Mattoon, for a ticket from that place to Charleston, at any time within ten or fifteen minutes before the actual departure of its train, and he was unable to get a ticket in consequence of the ticket office being closed, then the St. Louis, Alton and Terre Haute Railroad Company had no right to charge him upon the train any more than usual ticket price between Mattoon and Charleston."

The first instruction asked on behalf of the defendants and refused, was as follows:

"That if they find from the evidence that the defendant, The St. Louis, Alton and Terre Haute Railroad Company, has a convenient and accessible office, supplied with and for the sale of tickets in Mattoon; and on the evening of the alleged trespass the same was open, with a competent person in attendance to sell tickets for an hour before and up to the expiration of the time fixed by public notice for the departure of the train on which plaintiff took passage; that the plaintiff got upon said train to travel from Mattoon to Charleston without procuring a ticket and refused to pay, or cause to be paid, to the conductor of said train the amount of fare or passage money required by the regular tariff of said company for passengers who fail to produce tickets, and that by reason of such failure of plaintiff to pay or cause to be paid such fare or passage money he was expelled from the cars of said company at a regular station on said railroad, then in that case the jury must find the defendants not guilty."

The point of difference is obvious. While the instruction for the plaintiff requires the ticket office to be kept open up to the time "of the actual departure of the train," that for the defendant limits that duty "to the expiration of the time fixed by public notice," for the departure of the train.

It is insisted by the appellee, that the law is as declared in the instruction given in his behalf, and has been so held by this Court in the case of the Chicago, Burlington and Quincy Railroad Company vs. Parks, 18 Ill., 460, and reiterated in St. Louis, Alton and Chicago Railroad Company vs. Dalley, 19 id.,

364, and that the instruction is an exact transcript of the language of this Court, in the cases cited.

In this the counsel is not mistaken. In the case first cited, this Court said: "To justify a railroad company in making a discrimination in the fare against the passenger who neglects to purchase a ticket at the company's office, the company must see to it that the fault was not that of its own agent instead of the passenger. To justify this discrimination, every reasonable and proper facility must be afforded to the passenger to procure his ticket. They must furnish a convenient and accessible place for the sale of tickets, with a competent person in attendance ready to sell them, which should be open and accessible to all passengers for a reasonable time before the departure of each train, and up to the time of its actual departure, so that it shall really be a case of neglect and not of necessity on the part of the passenger, and not the fault of the company." Further on, in the next paragraph but one, the Court call these remarks "suggestions," and give the reason why they were made, the point to which they apply not being in the case before them. The controversy there was this: Parks, an attorney-at-law, residing at Aurora, in Kane County, took the train there, without purchasing a ticket, for Batavia, the nearest point to Genoa, where the Court was held, and which Parks was going to attend. He paid the extra fare required of those who pay on the car from Aurora to Batavia. At the latter place he changed his mind, and, as it was wet, disagreeable weather, he concluded, without purchasing a ticket to proceed on to Junction, another station on the road. The ticket fare from Batavia to Junction was twenty cents, which Parks offered to pay to the conductor, but he refused it, demanding under his instructions an additional five cents, which Parks refusing to pay, the conductor put him off the train. This was the case in which the "suggestions" above quoted were made. The Court, and the learned Chief Justice of the Court, who delivered the opinion, were well aware of the fact that the time of the arrival and departure of railroad trains was fixed, and made notorious by publication and notice in every conceivable mode, so that it may be safely asserted, the business and traveling public, all those whose pursuits required that mode of conveyance, and especially those living in the towns through which railroads pass, were perfectly familiar with the fact, and almost any inhabitant, if inquired of, could tell to a minute when any particular train was due at their town, and when it would leave.

In speaking, then, of the time of the actual departure of a train, up to which the ticket office must be kept open, the Court, unquestionably, meant to be understood as referring to the published fixed time which everybody knew. The presumption being that trains will arrive and depart on their schedule time, which time is notorious, no rule shall be established that should apply, without much hardship and great inconvenience, to the departure of trains not on time. We do not recognize any right in any person to apply at a railroad ticket office after the time fixed and published for the departure of a train, and demand the same rights and privileges accorded to those who come at the proper time for their tickets. It is well known that trains are sometimes delayed for hours, and that it is unavoidable, would it not be going too far to require the companies controlling

them to keep an agent at his post during all this delayed time? Tickets are not usually applied for by passengers after the time fixed for the departure of a train. The companies have a right to presume they will not be applied for after that time, and therefore their agents can close the ticket office and go about their own business, of which they have an abundance, if we are to judge from the number of trains upon our railroads. An agent at a railroad station who sells tickets is, not only "ticket agent," but he is the "station agent," and has much to do with freight and other matters requiring care and attention. It would be unreasonable to require him to neglect these matters, and confine him within reach of the small opening at which the tickets are delivered, waiting for a delayed train, and not a passenger applying for a ticket. It is sufficient for the company that a reasonable opportunity should be afforded passengers to procure tickets for the train he designs to go upon, and that reasonable opportunity is furnished by keeping a convenient office open under the charge of a competent agent, up to the advertised time fixed for the departure of the train. The facts in this case show that the ticket office was open an hour before the train left, and continued open up to the time fixed for its departure. The plaintiff, coming after that time, took his chances to get a seat in the car, and, having no ticket he was bound to pay car fare.

We are of opinion the Court should have refused the first instruction for the plaintiff, and given the first asked by defendants, the company not being obliged to keep the ticket office open beyond the hour fixed by its published rules for the departure of a train.

These being the views we entertain of the law of this case, the modification of the defendant's eighth instruction was also erroneous as by that the office is required to be kept open up to the time of the actual departure of the train.

All that can be demanded of a railroad company is, that a reasonable opportunity shall be afforded the public to purchase tickets. If parties will not avail of it, it is their own fault, and if they get upon a train without a ticket, they must be subject to pay the car fare, or on refusal, to be ejected from the car. In Parks' case, this Court said the right to charge discriminating fares was just and reasonable, but it depends on the fact that a reasonable opportunity has been given to obtain tickets at the lowest rate of fare. The opportunity was afforded the appellee.

A minor point as to the ruling of the Court on the motion and affidavit of defendant's counsel to rule the plaintiff to give security for costs on the ground of his insolvency, has been raised.

The bill of exceptions shows this motion was made, and the affidavit is incorporated into it.

This motion was denied by the Court.

The statute provides "If in any case the Court shall be satisfied that any plaintiff is unable to pay the costs of suit, or that he is so unsettled as to endanger the officers of the Court with respect to their legal demands, it shall be the duty of the Court, on motion of the defendant or any officer of the Court to rule the plaintiff, on or before a day named, to give security for the payment of costs in such suit." Scates' Comp., 24.

The affidavit states that affiant had just learned that the plaintiff was insolvent, and at the time the motion was made the record shows the issue had been joined, and the cause had been called for trial. This court said, in

Selby vs. Hutchinson, 4 Gilm., 319, "that this motion was addressed to the discretion of the Court, and the decision upon it could not be assigned for error." We think the motion was too late.

Another objection is made by appellant to the instruction to the jury, that they could assess damages severally against the defendants. The instruction was erroneous, but the error was cured by the entry of a *nolle prosequi* before judgment upon the verdict against Austin and Lee, and taking judgment against the company alone. 1 Tidd's, Pr., 682. We can not see that this instruction, wrong as it was, prejudiced the appellant in any way.

The judgment of the Circuit Court is reversed, and the cause remanded, with directions to award a *venire de novo*.

Judgment reversed.

Pennsylvania Railroad's Leases—A Mistake Corrected.

The report of President Thomson, reviewed in our last number, together with a copy of a pamphlet containing the Trustees' circular to the stockholders and bondholders of the Pittsburg, Fort Wayne and Chicago Railway Company, and the lease of the latter line to the Pennsylvania Railroad Company, enable us to correct certain errors into which we fell in our leading article of the 10th inst. It was under a serious misapprehension of the terms of the contract between the Pennsylvania Railroad and the Pittsburg, Fort Wayne and Chicago Railway, that we said, in regard to the status of the latter:

"The road, in its operating management, is perfectly independent. Its company organization is maintained; and its various officers and agents perform their duties precisely the same as before the lease."

* * * * *

Maintaining thus its own organization and spirit, doing its own work in its own way, the road, after paying all operating expenses out of gross earnings, turns over the balance to the Pennsylvania Railroad, to be disposed of in accordance with terms of the lease."

The lease is "perpetual" (999 years), and the transfer of the line entire and absolute. The Pennsylvania Railroad is "at its own proper cost and expense," to operate the Pittsburg, Fort Wayne and Chicago and its leases—to keep it "in thorough repair, working order and condition, and supplied with rolling stock and equipment," so as to preserve, encourage and develop its business, making such "repairs, replacements and renewals," and such "additions, constructions and improvements" as are necessary to that end.

As regards the continued corporate organization of the Pittsburg, Fort Wayne and Chicago, it is maintained for the sole purposes of keeping alive the franchises of the road, and to apply the money received as rental and on interest account to its proper purposes.

The following extracts from the circular of the Trustees of the Pittsburg, Fort Wayne and Chicago Railway sufficiently illustrate the purport of the contract:

"And now that terms have been obtained which are reasonably satisfactory to our stockholders—which enhance the security of our bondholders—and which are permanent and reliable, we can not hesitate to except the Pennsylvania Railroad Company as an ally instead of a rival; and although, perhaps, the income of our stockholders and bond-

holders might be deemed already certain, we can not doubt that they will prefer, instead of rivalry and perhaps conflict, the *superadded guarantee of a wealthy corporation adding to our annual two millions over interest, its annual four millions and a half over interest, for our security.* * * *

The stockholders become entitled to the benefit of a fund adequate to give them twelve per cent on the present stock, free of all taxes which are collected in any manner through the corporation; and are guaranteed perfectly in the enjoyment of that fund."

The operating management of the road is vested in an officer, who, by appointment represents the Pennsylvania R. R. Co.

Into the details of operation it is unnecessary to go, farther than to state that while the Pennsylvania Railroad entrusts to its own proper employees all joint business east of Pittsburg, the entire interests of the Pennsylvania Railroad and its leased lines in the West are subject to the supervision of its official representatives.

This arrangement, admirable alike on the score of economy and efficiency, includes the Pittsburg, Cincinnati and St. Louis. The accounts of this line are not included, however, in the Pennsylvania Railroad report, for the reason that with the consent of the Pennsylvania Railroad Company, which owns a majority of its stock, it maintains its own organization and management. The Columbus, Chicago and Indiana Central and Little Miami Lines are leased to the Panhandle, the Pennsylvania Railroad guaranteeing the contracts.

President Thomson, in his report, clearly indicates the character of these arrangements. Having included the Pittsburg, Fort Wayne and Chicago receipts among "the revenues of the lines operated" by the Pennsylvania Railroad Company, he subsequently says:

"The same reasons that induced this company to become the lessee of the Fort Wayne line, prompted the Pittsburg, Cincinnati and St. Louis Railroad Company, in which this company holds a majority of its shares, to take at an earlier period a lease of the lines owned by the Columbus, Chicago, and Indiana Central Railroad Company."—*Chicago Railway Review.*

The Rights of Mortgage Bondholders.

A recent decision of the Supreme Court of Vermont, practically restores the Rutland & Burlington Railway Trustees of the first mortgage. In a suit instituted by Messrs. Cheever and Hart, Trustees under the first mortgage, against the Rutland Railway Company, the Supreme Court decided that the first mortgage bonds must be paid before June 1, 1870, or the possession of the road be surrendered on that day to the first mortgage bondholders. It will be remembered that in the year 1868 the second mortgage holders were incorporated, under the name of the "Rutland Railway Company," and were authorized to issue preferred stock for the redemption of such of the first mortgage bonds as the holders would relinquish. The opportunity for an exchange was generally accepted, but a minority of the holders of the first mortgage bonds refused to surrender their stock, and, represented by Messrs. Cheever and Hart, Trustees, brought suit to recover control of the road. The case was taken up to the general term of the Supreme Court, at Montpelier, last fall, and argued with great ability on both sides. The decision, of the

Court that the \$780,000 of unconverted first mortgage bonds must be paid up, with interest, by the first of June next, or the control of the road relinquished to Messrs. Cheever and Hart, Trustees under the first mortgage, it is thought will induce the stockholders of the Company to take steps to pay off the outstanding first mortgage bonds, and obviate the necessity of any transfer from the present managers. In that case, the only probable change will be after the first of June the road will be formally run by the Rutland Railway Company, of which ex-Governor Page is President.

Pittsburg, Fort Wayne & Chicago Railroad.

The annual meeting of the Pittsburg, Fort Wayne and Chicago Railroad Company was held on the 15th inst., at the Company's office, in Pittsburg. Gen. George W. Cass, President, in his report says:

The lease of your railway and property, which was executed on the 7th of June last, approved by you on the 24th of June, was carried into practical execution on the 1st of July following by a surrender of the same to the Pennsylvania Railroad Company, and by that Company received according to the terms of the lease, and since managed and controlled exclusively by that Company. During the six months of the lease the gross earnings were as follows:

Earnings of main line.....	\$3,950,409 10
Sixty per cent of earnings of Newcastle Branch.....	73,542 53
Sixty per cent of earnings of Lawrence Branch.....	36,078 07
Sixty per cent of earnings of Akron Branch.....	79,908 77
Interest due from Cleveland and Pittsburg Railroad Co...	6,943 75
	\$4,146,882 22
Expenses of main line.....	\$2,143,145 62
Expenses of New Castle Branch	38,476 83
Expenses of Lawrence Branch..	27,994 35
Expenses of Akron Branch.....	68 261 33
	\$2,277,878 13
Leaving a profit of.....	\$1,869,004 09
Amount paid and payable by the terms of the lease.....	1,283,956 80
Due Cleveland and Pittsburg Railroad Company in division of earnings.....	29,369 75

	\$1,313,326 55
Excess of net earnings.....	555,677 54
Being an apparent profit for the first six months of the lease of	555,677 54

The whole of the amount, excepting \$36,829.50, was expended on the road for construction, equipment, and extraordinary expenses, \$78,913 having been expended in ten new locomotives, and \$140,167.22 in new freight cars, &c., &c.

On the application of the lessees of the road, and without prejudice to the lease, your Board has sold the Akron Branch road, so called, to a new organization called the Cleveland, Mount Vernon, and Delaware Railroad Company, for \$1,000,000 of the stock of that Company, said company assuming to pay the \$153,000 outstanding bonds against the Akron Branch road. At the time of your approval of the lease, you instructed your Board to capitalize the amount received for rent, so that with new certificates of stock to

be issued in substitution of the old there should be a perpetual dividend of seven per cent per annum, payable quarter-annually, free of all taxes. Your Board has carried these instructions into effect, and the new certificates were issued so as to make the first dividend payable on the 1st of October last.

Working Coal.

The following is an abstract of a paper entitled "Further Remarks upon Different Methods of Working Coal," read by Mr. Geo. Fowler before the Midland Institute of Mining Engineers, on the 1st ult. The different methods of working coal are the practical applications given to two distinct ideas. One idea is to leave a portion of the coal as a pillar or prop for the support of the roof, and this is carried out in the board and pillar work of the North, and the bank work of Yorkshire; and the other is to remove the whole of the coal and allow the roof to settle upon the goaf. The principal difficulty with pillar mines is that, as the area of the pillars must be proportionate to the weight upon them, a point is soon reached when the greatest part of coal must be left in pillar. As this can not, of course, be wasted, it necessitates the working of the coal at two operations of complete character, instead of one, thereby greatly increasing cost, and diminishing the proportion of large coal. The great point in successful long-wall work, is simplicity of arrangement, and a most cautious use of pillars. The use of pillars necessitates the driving of straight work, and has the effect of unduly increasing the area of workings. An instance was given of a most successful long-wall mine, in which no coal was left for pillars, no straight work driven, and the arrangements were of a most simple and economical character. The paper went on to show how favorable a proper application of long-wall was to the safety of the mine. That it admitted of a most simple and effectual ventilation; that it had none of those weak points which are common to every kind of mining where bratticing is necessary. That it regulated the discharge of gas in proportion to the coal hewn. That it was consistent with the formation of the most compact, and hence least dangerous goafs. That the failures in long-wall mining had arisen only in those cases where its application was imperfect, and grafted on other methods of work, rather than commenced upon through long-wall principles.

The Cleveland Iron Company, established about seven years ago, with a capital of \$300,000, occupy a tract of 25 acres of land accommodated by the Cleveland and Mahoning and C. C. & I Railways. Their blast furnace has a capacity of 40 tons per day, and their daily consumption of coal exceeds 200 tons. The product of these works includes rails, spikes, splices, bar iron and nails. In the manufacture of the latter 26 machines are used, with a capacity of 150 kegs per day. They also turn out fifty tons of rails, 20 tons of bar iron and 2 tons of spikes per day. A force of 300 hands, besides those in the coal mines, is employed, and 11 engines furnish power to the machinery. The engine which drives the blast furnace is of 300 horse power. The gas from the furnace is utilized as fuel, being returned through flues from the chimney. George Worthington is President of this Company.—*Railway Times.*

Railroad Items.

—The earnings of fifteen of the principal Western railroads for the month of February, with the single exception of the Chicago & North-western, show a material increase over the corresponding month last year. The following is the comparison:

RAILROAD EARNINGS FOR FEBRUARY.

	1870.	1869.
Chicago & Alton.....	\$323,825	\$315,098
Chicago & North-western.....	755,404	830,286
Chicago & Rock Is'd	398,200	319,441
Clev., Col., Cin'ti & Indianapolis.....	218,600	180,804
Cleveland & Pittsburg.....	151,024	135,150
Illinois Central.....	663,391	524,693
Lake Shore & Mich. Southern.....	1,006,951	880,593
Marietta & Cincinnati.....	98,275	91,666
Michigan Central...	329,127	320,636
Milwaukee & Saint Paul.....	382,823	330,233
North Missouri.....	196,207	94,927
Ohio & Mississippi...	218,234	216,080
Pacific of Missouri..	250,616	207,302
St. Louis, Alton & Terre Haute.....	158,788	127,817
Toledo, Wabash & Western.....	293,645	240,394
Total.....	\$5,445,110	\$4,815,156

Total increase.....\$704,836
Decrease in North-western.....74,882

Net increase.....\$629,954

—The bridge over the Kansas at Lawrence will be completed within a few months, at a cost of about \$150,000. The depots are neat and substantial, those at Lawrence and Garnett being large and expensive. The rolling stock consists of eight engines; five passenger, one express, and two baggage cars; 60 freight, to which 100 box cars are to be at once added. *The Lawrence Republican* thus speaks of this important road, now being pushed forward by Mr. James F. Joy, President, and Mr. Sturges of Chicago:

"It connects the Lakes with the Gulf, and brings the North and South together. The trans-Mississippi States can import their sugars, coffees, spices, and tropical fruits, direct through the port of Galveston. The hundreds of thousands of cattle that are grown upon the lands of Texas at a mere nominal cost, will be shipped to and through our State over this road. At Lawrence and Leavenworth should be established packeries, and our business multiplied 50 fold. Here factories should be established for working cotton, and Kansas apples and wheat will find a ready market in Galveston. The road does not run through 600 miles of burning sand, but through 600 miles of country unequaled for the general purposes of agriculture, stock raising and fruit-growing. Every mile is rich in agricultural resources, thus insuring, beyond peradventure, one of the best paying local roads in the country, to say nothing of its immense through business.

The Company have 1,000 men at work on the extension to Iola—32 miles further—at which place another "opening" will be celebrated in June."

—The Morris & Essex Railroad has received authority to increase its capital stock to \$15,000,000.

—The report of the Detroit & Milwaukee Railroad, for the year 1869, shows that the amount of the bonded debt is \$5,207,506 75, and the mortgages of the Detroit river front and the machine shops amounting to \$105,901 67. The whole amount of the preference shares is \$2,095,900. There are \$1,861,639 33 of bonds of June 30, 1866. Of these, \$350,000 have been redeemed, and the ordinary stock appropriated to shareholders, at 20 per cent. per share, is set down at \$452,350. The expenditures upon the line during the year were \$139,940 68. The receipts, exclusive of the Lake Michigan portion of the line, the operations of which were during the year carried on by other persons, were \$1,615,618 27, \$694,251 49 of this being from passengers, \$871,281 80 from freight, and \$46,934 89 from mails and sundries. The working expenses for the year, including taxes and insurance, were \$949,351 26. The Lake Michigan steamer Detroit has been sold, and the business of that portion of the line is now conducted by Mr. N. Engleman, of Milwaukee, the steamers Ironsides and Lac la Belle constituting the line. The western terminus of the road has been changed from the west to the east side of the river at Grand Haven, an iron bridge has been built across the channel, a considerable tract of land has been purchased, and a depot, freight-house and other buildings put up there, involving an expense already of \$133,236 49. To complete these improvements it is estimated that \$47,000 more will be required.

—The total earnings of the Chicago and Alton Railroad for the year ending Dec. 31, 1869, were:

From passengers.....	\$1,391,507.43
From freight.....	3,066,143.73
From express, mails, etc.....	223,821.65
Total.....	\$4,681,562.81

OPERATING EXPENSES.

For conducting transportation..	\$574,533.22
For motive power	767,186.99
For maintenance of way.....	816,723.78
For maintenance of cars.....	302,274.26
For general expenses.....	96,235.38
For taxes.....	119,630.21
Total.....	\$2,676,593 04

Of the gross earnings 57 17-100 per cent. have been used for operating expenses and taxes, against 54 60-100 per cent. in 1868—an increase of 2 51-100 per cent. The gross earnings (including those of the Jacksonville Division, seven months in the report for 1868) exceed those of the previous year \$172,919.34—3 8-10 per cent. Of this increase \$86,027.27 (about 6 6-10 per cent. was from passengers.) The locomotive equipment (97 last year) has been increased by 11, but one of which was built by the Company. The car equipment numbers 2,116—Pullman, 10 (7 sleeping, 3 dining); 42 passenger; 21 mail and express; 2,038 freight, &c.

—The Cleveland, Columbus, Cincinnati & Indianapolis earned in 1869 from passengers, \$840,819 48; freights, \$2,090,540 76; other sources \$211,372 61, a total of \$3,142,935 85. The expenses were \$2,337,443 81, leaving net earnings, \$805,492 34. Dividends paid in August, 3½ per cent.; in February, 3½ per cent., \$731,923 50, leaving a surplus for the year of \$73,668 84, and surplus as per ledger, \$225,024 50; makes \$298,593 34; less discount on bonds sold, \$146,200; leaving a surplus Jan. 1, 1870, of \$152,393 34. Assets.—

Construction account, \$12,160,636 77; materials on hand, \$405,623 29; cash and cash assets, \$930,012 59; other assets, \$668,005 19. Total, \$14,164,277 89. Liabilities.—Capital stock, \$11,620,000; less amount held by this Co., \$1,159,100—\$10,460,900; C., C. & C. R. R. mortgage bonds, \$25,000; falling due each year, \$365,000; B. & I. R. R. first and second mortgage and income bonds, \$774,500; I. P. & C. R. R. first mortgage bonds, \$403,500; C., C., C. & I. R. R. first mortgage sinking fund bonds, \$1,637,000; due rent N 4, payable Feb. 1, 1870, \$365,984 50, surplus earnings, making a total of liabilities of \$14,164,277 84, of which \$272,500 of bonds have been paid since Dec. 1, 1869.

—The State of Virginia has the following railroad property:

Alexandria, Loudoun & Hampshire Railroad bonds.....	\$50,862.40
Blue Ridge Railroad, owned by State (cost)	1,744,723.23
Chesapeake & Ohio Railroad Co.	2,484,134.74
Norfolk & Petersburg Railroad.	1,341,341.82
Orange & Alexandria Railroad.	1,150,207.89
Richmond & Danville Railroad.	1,847,585.52
Richmond & Petersburg Railroad, common stock.....	385,600.00
Richmond, Fredericksburg & Potomac Railroad Company.....	275,200.00
Richmond & York River Railroad Co	490,999.52
Southside Railroad Co.....	1,883,500.00
Virginia & Kentucky Railroad Co	103,438.69
Virginia & Tennessee Railroad Co.....	3,755,000.00
Marietta & Cincinnati Railroad Co.	202,611.91

Most of this property is valueless. The Governor recommends that the railroad companies be permitted to redeem their indebtedness to the State by surrendering State bonds to an equal amount.

—The Baltimore and Ohio Railroad Company sometime last summer made such arrangement with the Indianapolis, Cincinnati & St. Louis Railroad as to secure its eastward bound traffic. Having extended its line so far to the North-west, naturally it desires to secure another extension which will enable it to enter Chicago and send over its own lines a share of the business of this city. It is now proposed to build a railroad from Lafayette North-west to Kankakee, on the Illinois Central, a distance of about 75 miles. With this road and an arrangement for the use of the Illinois Central between Kankakee and Chicago, the Baltimore & Ohio would have a route between Baltimore and Chicago, as short as any other, and also a route between Chicago and Cincinnati. The increase of business from Chicago over the Baltimore & Ohio line has been large within a year past, and it seems hardly doubtful that the closer connections to be secured by building the Lafayette & Kankakee line would prove so advantageous as to amply justify its construction.

—There is an effort being made to regulate railway fares still further by enactment of the New York Legislature. A new bill provides that any railway company charging more than legal fare may be sued for five times the amount of overcharge and be compelled to pay that amount and costs of suit. It provides that damages for loss of baggage shall not exceed \$200, unless special agreement is made and the passenger pays reasonable extra charge for baggage beyond that value. It also provides that the speed of railways in cities and incorporated villages shall not ex-

ceed fifteen miles per hour, and that no street or highway shall hereafter be laid out across the track of any steam railway at grade, and the expense of any street or highway built across any railway track shall be borne by the city, village or town whose authorities shall have authorized such crossing.

—It is expected there will be a "new regulation" compelling railway companies having land granted them, to draw out plats upon the completion of each section of ten miles, and sell the land in bodies of a quarter section or less to one individual, at a maximum average price upon the ten miles of \$2.50 per acre—to prevent speculation. This, instead of actually giving the land to the railways, donates the proceeds of sale. It also throws the contiguous lands open to settlement immediately upon completion of each ten miles of road, instead of keeping them locked up as now till the entire road is finished, and the government surveys made.

—The receipts of the Northern Railway Company of Canada for the year 1869 were \$671,076, against 550,070 for 1868. The working expenses were 50.37 per cent, as against 61.06 in 1868. This company expended during the year \$151,450 for elevators, wharfage, and other extension works at Toronto. The Directors expect that the new Toronto Elevator will be finished and ready for service immediately on the opening of the ensuing season of navigation; and they are already engaged in preparations for the construction during the coming Summer, of a similar structure, but of less capacity, at Collingwood.

—All the cars, equipments, patents and contracts heretofore belonging to the Central and Southern Transporting Companies, have been transferred to the Pullman Palace Car Co. By this arrangement the Pullman Company acquire the right to run their cars over 6,000 miles of additional railway, as well as the entire ownership of all sleeping car patents the right of which has heretofore been in litigation between the Central and Pullman Companies.—*Am R R. Jour.*

—The Peoria, Pekin, and Jacksonville Railroad was completed the last year to the city of Jacksonville, and is 83 miles long. Under its charter it may be extended to St. Louis. It is independent in its present relations with other connecting roads, but its interchange of business is largely with the Chicago, Rock Island and Pacific Railroad Company. Its bonds and stock are owned almost wholly by the Directors, and are on the market.

—It is proposed to take \$6,000,000 in bonds out of the sinking fund of the State Treasury of Pa., and substitute therefor a similar amount of those of a new railway corporation for the purpose of constructing the "link of connection" between Jersey Shore and Allegheny Point, and thus open a new route from Philadelphia to Buffalo. The measure is backed by the Pennsylvania Central, Northern Central and Reading.

—The total income of the steam railways in Massachusetts last year amounted to \$24,539,722; working expenses, \$17,342,992; net earnings, \$7,196,730; surplus, Nov. 30, 1869, \$5,891,078; tons of freight carried, 7,378,083; number of passengers carried, 28,126,391; passengers killed, 10; employees killed, 39; persons killed while walking or lying on the tracks, 40.

—The annual report of the Flint & Perre Marquette Railroad states that, during the year 1869, the company opened 90 miles of new line. The earnings and expenses compare with the preceding year as follows:

	1869.	1868.
Earnings, gross.....	\$466,737	\$381,983
Operating expenses...	234,030	192,405
Net earnings.....	\$232,707	\$189,578

—Since 1850, one hundred and twenty millions of acres have been voted away to the four Pacific Railroads. Four hundred and fifty million acres remain. During the twenty-six working days of the last session of Congress, bills were introduced into the Senate asking for appropriations for railroads of 224,245,520 acres, or nearly one-half of the whole amount of territory remaining unoccupied.

—The road-bed of the Grand Rapids and Indiana Railroad is about completed from Fort Wayne to Sturgis, and track-laying has been commenced. The iron for the purpose is being received at both points. The work of track-laying will be pushed forward with great rapidity, and it is confidently expected that the construction train will reach Lagrange by the middle or latter part of April next.

—Minneapolis voted \$25,000 to aid the Minnesota Western, while the town of Saint Anthony, across the river, refused to give anything whatever. The good people of Saint Anthony are apparently quite contented with their great empty barn of a hotel, their unimproved sandy thoroughfares, their large school house, their innumerable building lots, and eternal roar of water at the Falls.

—The Boston, Hartford, and Erie stockholders ratified the second mortgage of \$10,000,000. But it will be necessary to have the mortgage ratified by the Legislatures of the different States through which the line runs. This new mortgage pays off a demand debt, releases many millions of the old bonds, and funds the floating debt.

—*The Terre Haute Gazette* says: "There is but ten miles of track yet to be laid on the Vandalia Railroad between this city and Marshall. This will be completed by about the first of April, when the only obstacle left will be the Wabash River, the bridge upon which is being pushed forward with all possible haste."

—The Union Pacific Railway Company have received \$3,300,000 in stock of the Atlantic & Pacific Telegraph Company, in consideration of the use of its line for commercial purposes. Besides getting a large part of its telegraph service free, a handsome increase is anticipated from the above-named large amount of stock.

—If the Kansas Pacific be extended to the Mexican frontier by way of the Arkansas and Rio Grande, the Government will have more than 1,000 miles of rail for the \$6,000,000 advanced to a former company (the land grant being the same as that of the Atlantic and Pacific) which is 20 miles each side of the route in alternate sections.

—A meeting was held in Lafayette in the interests of the Lafayette and Terre Haute Railroad. The following resolution was adopted:

Resolved. That if the people along the line of the proposed road will raise \$75,000 in bona fide stock, we of Lafayette will raise a like amount.

—That seventy hours snow storm must have been a snorter for the railway men along the Union Pacific, and somewhat embarrassing to impatient travelers. Nevertheless, we are continually notified, that the most "heuristic forwardness" prevails along the line west of Omaha.

—The Camden & Amboy (N J) Company works against the proposed new air line between New York and Philadelphia by asking the Legislature for the very privileges which the Air Line wants. The Camden & Amboy bill has passed the House, while the Air Line bill is still pending in the Senate.

—Fort Wayne on March 15th, voted to aid the Jackson, Saginaw and Fort Wayne Railroad to the extent of fifty thousand dollars. This secures the means for its early completion, and it is the intention to have the road open to Jackson by July next.

—Fifty-two miles of the Galveston (Texas) Railway is now in operation from Lawrence to Garnett. The remaining 91 miles, to the State line, are under contract, to be completed, 20 miles April 1, 71 miles more Oct. 1.—Humboldt being due June 1.

—The Brooklyn horse-car railways make the following returns for the month ending March 16th: Brooklyn City, \$86,222; Broadway, \$8,144; Brooklyn City and Newtown, \$20,946; Grand street and Newtown, \$4,989; Atlantic avenue and Flatbush, \$14,155.

—Great changes are about to take place in the organization of the Russian Railways. The government has decided to sell all the existing State railways to private companies, in order to facilitate the speedy completion of the projected lines in the south.

—The Wisconsin Legislature has passed the bill permitting railroad companies in that State to classify their directors into several classes, so that a proportion only go out of office each year.

—The iron for the Northern Pacific and other great western routes will probably be taken from the Lake Superior mining region, where some of the best ore of the world is to be found.

—The Committee of Ways and Means of the City Council of Baltimore have recommended the passage of an ordinance to grant the aid asked for the construction of the Danville and Lynchburg Railroad.

—The Tennessee Legislature, March 3, adopted a resolution declaring that railroads not paying interest on bonds loaned, shall be protected against interference outside of the State.

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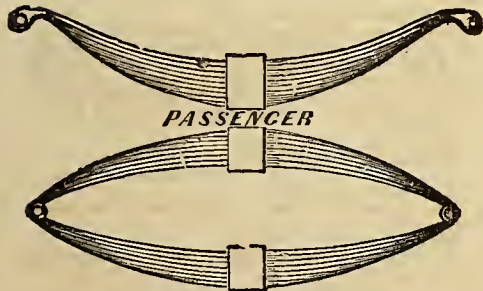
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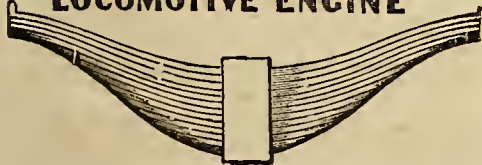
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SEALED PROPOSALS will be received at the Engineer's office at Charleston, W. Va., until 12 M. March 1, 1870, for the GRADUATION, MASONRY and the SUPERSTRUCTURE OF BRIDGES on the Chesapeake and Ohio Railroad between the Falls of Kanawha and the Ohio River, including THREE MILLIONS CUBIC YARDS OF EXCAVATION, and SEVENTY THOUSAND CUBIC YARDS OF MASONRY.

Also, at the Engineer's office at Richmond, Va., until 12 M. March 10, 1870, for several heavy sections east of the Falls of Kanawha, including the unfinished work near Millboro' and that eight miles east of the White Sulphur Springs the Great Bend tunnel 6,400 feet; Lewis tunnel, 3,800 feet; five other tunnels from 500 to 1,700 feet long; several sections in rock cutting; and about 70,000 cubic yards of masonry.

Profiles and specifications can be found at the office of the company) 54 William street. New York, on and after February 1; at Richmond, Va., and at Charleston, W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuiper, Principal Assistant Engineer, Charleston, West Virginia.

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JANUARY 1st, 1870.

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Night Express..... 10:20 P. M. 6:00 A. M.

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7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Gallon, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.48 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.21 P. M.; Ravenna, 5.05 P. M.; Meadville, 7.55 P. M. (Supper); Susquehanna, 8.10 A. M. (Breakfast); Turner's, 2.07 P. M. (Dine); New York, 4.10 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.01 A. M.; Urbana, 1.26 A. M.; Gallon, 4.00 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.56 A. M. (Bkfst); Akron, 7.33 A. M.; Ravenna, 8.20 A. M.; Meadville, 11.16 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.10 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

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The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

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And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street. 115 Vine St., 4 Burnet House, and foot of Broadway. (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUCK, Gen'l Pass'r Ag't.
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Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West, North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
*St. Louis and Springfield Express. 10.20 pm		3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.30 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)....	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima, Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:30 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:45 A. M.
do do do		6:50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
SAM'L STEPHENSON, Gen'l Ticket Ag't.
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For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,
No. 27 West Third Street, Cincinnati.

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Pittsburgh, Pa.

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Time only 5 hours

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THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot Covington, Ky.

SAM'L GILL, Gen'l Sup't. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Eason with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckhannock, &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Lititz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:00 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:40, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON,
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, APRIL 7, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

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SUBSCRIPTIONS—\$3 per annum in advance.

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WRIGHTSON & CO., Prop'rs.

How can we Construct the Cincinnati and Chesapeake Road?

It is plain enough, that the present best thing Cincinnati can do for herself, is to construct the road from Cincinnati to South Point and connect with the Ohio & Chesapeake road.

On the 16th inst., the Chesapeake & Ohio Railroad Company put under contract near seventy miles of their road in the Kanawha Valley, and we are assured this part will be finished within a year; hence it is that we ought to be up and doing. The immediate question is, how can the connection between Cincinnati and the Chesapeake road be made? The counties through which the Cincinnati road will pass, with a little aid from Cincinnati, have means and ability to make that road; but, how can those means be brought out and made available? A stranger would ask in surprise, what is the reason they can not apply them? Can not the people use their own means? No, they can not. If they could, many a railroad would be made round Cincinnati? Why not? We have stated the reason often; but for the purpose of showing how the Cincinnati & Chesapeake road may be made, we will refer to the legal points and remedies again.

The Constitution of Ohio will not allow municipalities of any kind to subscribe to, own stock in, or raise money for incorporated companies. This was the first difficulty in the case of the Southern road, and was supposed to be overcome by what is called the "Ferguson Act."

On the theory, then, that this law is consti-

tutional, why not apply it to the counties? Let us examine it for a moment. The clause in the Constitution relating to this subject of municipal improvements has, we think, been misunderstood, and therefore we will insert the exact words of the Constitution. Section 6, of the 8th Article of the Constitution says:

"The General Assembly shall never authorize any county, city, town or township by vote of its citizens or otherwise, to become a stockholder in any joint stock company, corporation, or association whatever; or, to raise money for or loan its credit to, or in aid of any such company, corporation or association."

Now, the reader will see, that the only thing forbidden is, that the Legislature shall authorize the municipalities to be directly, or indirectly interested in any "company, corporation or association." That is all, and it is clear as daylight, that any county has a perfect right to make any improvement it pleases, or to levy any amount of money for it. This is its inherent right, and if any further legislative authority is required, the Legislature has an undoubted right to grant it. If it were not so, how could a county improve the roads, make bridges, or do anything of the sort? The very fact that counties are constantly making bridges and roads, is conclusive. It shows a universal admission and understanding, that the counties have a perfect right to make their improvements themselves. Whether the road costs a thousand or a million of dollars, makes no difference as to the right of County Commissioners to do this work.

Moreover, the County Commissioners have a right to, and often do unite together to make bridges jointly. There is nothing in the above clause of the Constitution, which impairs their right to do this in the slightest degree. Whatever authority may be needed to perfect the details, the Legislature has an undoubted right to grant.

There are six counties: Hamilton, Clermont, Brown, Adams, Scioto and Lawrence, directly and immensely interested in this enterprise. Let them divide the cost of the road between them; and each county be empowered to act by trustees, or let the Commissioners of the counties be the trustees, and let them appoint an executive committee to execute the work.

We suppose, that the Cincinnati & Chesapeake Railroad, being 125 miles, will, with all economy, cost about \$3,000,000, and as the road has to be made wholly by the counties, that this sum must be distributed among them. The county of Hamilton has a great deal more of population and wealth than all the others; and it will be very moderate to say it should pay two-fifths of all the expense. Then the total cost of the road made from Cincinnati to the Kanawha would be distributed in something like the following proportions:

Hamilton county.....	\$2,000,000
Clermont county.....	600,000
Brown county.....	600,000
Adams county.....	400,000
Scioto county.....	800,000
Lawrence county.....	600,000
	\$5,000,000

Now, we say, that there is nothing in the Constitution to prevent the counties from doing this work—nothing in reason to prevent their doing it, and all the interests of each county, and especially of the city of Cincinnati, demand that it should be made. There is nothing necessary to do the work but the authority of the Legislature to the action of the counties, and the good will of the people. There is no doubt the people are almost unanimously in favor of this measure. Why not the Legislature?

Pittsburg, Fort Wayne & Chicago Railroad in the Ohio Legislature.

The following interesting and remarkable proceedings were had in the Ohio Legislature, to-day, touching one of the greatest Railway corporations in the country.

We have no opinion to give upon the question, as we are waiting for the facts; but if all is as it ought to be, such an investigation can do no harm; and if otherwise, the dignity of the laws, and the rights of citizens may as well be sustained now as at any other time. Such a position will be a notice to all the world that corporations, however powerful, are amenable to the laws, as well as the humblest individual, and will be held accountable for their infraction.

House Resolution No. 66—MR. GASTON.

Resolved, That the Standing Committee on Railroads be, and they are hereby, required to report to this House, at an early day as possible.

First, By what authority the line of railroad in this State, known as the Pittsburg, Fort Wayne & Chicago Railway, is now run and operated as a railroad.

Second, By what authority the Pittsburg, Fort Wayne & Chicago Railway Company exercises the privilege of acting as a corporation within this State.

Third, By what authority said Pittsburg, Fort Wayne & Chicago Railway Company undertook to lease the line of railroad in this State known as the Pittsburg, Fort Wayne & Chicago Railway to the Pennsylvania Central Railroad Company, and that they also report the terms and conditions of said lease, and the manner in which it was executed.

Fourth, What, if any, provision has been made by said Pittsburg, Fort Wayne & Chicago Railway Company for the service of process upon said Company.

Fifth, By what authority the capital stock of said Pittsburg, Fort Wayne & Chicago Railway Company has been increased seventy per cent; at whose instance, and for what purpose, said increase of stock has been made.

Sixth, Whether the public welfare requires that this House direct the Attorney General to cause proceedings, in the nature of *quo warranto*, to be instituted against said Pittsburg, Fort Wayne & Chicago Railway Company, and against said Pennsylvania Central Railroad Company, so as to determine by what authority said Companies assume to act as corporations within this State; and said Committee are hereby authorized to send for persons and papers.

OPINION OF ATTORNEY GENERAL.

THE STATE OF OHIO, }
OFFICE OF THE ATTORNEY GENERAL, }
COLUMBUS, April 4th, 1870. }

HON. D. J. CALLEN, *Chairman of the Standing Committee on Railroads of the House of Representatives of the General Assembly of the State of Ohio:*

SIR—I have examined, as far as my limited time will allow, the subjects spoken of in House Resolution No. 66, submitted to me by your Committee, and have the honor to reply as follows:

1st and 2nd. The Ohio & Pennsylvania Railroad Company and the Ohio & Indiana Railroad Company were originally two corporations of the State of Ohio, authorized and organized under the Railroad Act of 1848, and of course under the old Constitution.

Under the Act of 1852 (S. & C. 280) and the Act of May 1st, 1856 (S. & C. 327), these two companies were, in August, 1856, with the Fort Wayne & Chicago Railroad Company consolidated, and the new company took the name of the Pittsburg, Fort Wayne & Chicago Railroad Company. This act of consolidation, I am satisfied, merged all the property, rights, privileges and franchises of said two Ohio companies, with the Fort Wayne & Chicago Company, except the franchise of corporate existence. This right, or franchise *to be a corporation*, as I think, remained with the old companies undisturbed, notwithstanding the agreement for consolidation, believing that under the new Constitution the new Company could not, even with the legislation as then existed, or any other legislation, acquire the right to *corporate existence* in this way.

In 1861 suit was instituted by the mortgagees of the different companies forming the new company, in the United States District Court for the Northern District of Ohio, and a decree rendered directing that the property, rights and franchises of these corporations should be sold, and under that decree sale was made of all the property, rights and privileges of the old companies, and the new company, that could be sold, or upon which the mortgagee could have a lien, by virtue of their mortgages. The franchise of *corporate existence* was not then the *subject of lien as property*, and therefore did not pass by the sale, but remained where it originally was. Lanier and others *bought what was sold, and no more.*

Lanier and others, in 1862, sold to the Pittsburg, Fort Wayne & Chicago Railroad Company what they *bought, and no more*, for they had no more to sell.

This last company, to whom Lanier and others sold, is a foreign corporation, created by the Legislature of Pennsylvania, and owns the property bought by it of Lanier & Company, and operated that part of its line of roads lying in Ohio (prior to its lease to the Pennsylvania Central Railroad Company), or claimed to operate it under the 7th Section of the Act of April 11th, 1861. That statute expressly provides that such Company "shall exercise no power, privilege, faculty or franchise within this State inconsistent with the laws thereof, and that such part of such railroads shall be subject to all the regulations of law in the same manner as railroads in this State in like cases; and that the corporation owning the same shall be subject to all duties imposed by law, and to be sued," &c., "in the same manner as a corporation of this State might be sued," &c. (See proviso to Sec. 7).

So far, then, it seems clear that the present Pittsburg, Fort Wayne & Chicago Railroad Company is without corporate existence under the *Constitution and Laws of Ohio*.

Under the Constitution and Laws of Pennsylvania it can not exercise corporate power in Ohio.

A franchise to be a corporation is originally a part of the sovereignty of the State. The State grants to persons desirous of exercising corporate powers a portion of this sovereignty. This sovereignty in its original position, or when so granted, can not exist outside of the State to which it belongs. It follows that this Company has no corporate existence in Ohio.

Upon principles of comity it is permitted to operate that portion of its railroad in Ohio subject in all respects to the general laws of Ohio regulating railroads.

It is a grave question, and I do not now propose to discuss it, how far this principle of comity ought to be extended to a foreign corporation, whether it should be allowed to exercise the right of eminent domain, or even to own real estate in Ohio, or to operate and monopolize its great thoroughfare.

It may be claimed that under the Act of May 4, 1863, (S. & S. 131) this new company has "*acquired the franchise to be a corporation.*" If this be the case, then it seems to me, Section 1, Art. 13 of the Constitution is of but little avail; or Section 2 of the same article either.

Here is a foreign corporation by this statute vested with the *special privilege* of "acquiring corporate existence" as a corporation in Ohio by a *special mode*. This section of the Constitution can not be held, it seems to me, to warrant the perpetuation of special privileges in this way.

3d. I can find no official evidence of the lease of this road to the Pennsylvania Railroad Company; nor do I know any authority under which such a lease can affect the portion of said line in Ohio, unless it be implied from section 7 of the Act of 1861, above referred to.

4th. The present operators of said railroad have no general office in Ohio, so far as I can ascertain. As to mode of service see S. & S. 542, Act of April 30, 1863; also, S. & S. 118 and 119, sec. 46 and 47.

5th. I have no data to determine anything as to the increase of capital stock referred to.

6th. The Attorney General has full power to proceed when complaint is properly made against any corporation, &c. (See S. & C. page 89, sec. 8, *et seq.* Act of May 1, 1852) and until some person shall have shown himself *aggrieved*, it is hardly necessary to order the Attorney General to institute proceedings. This is, however, a matter purely in the discretion of the General Assembly.

Very respectfully,

J. B. POND, *Att'y General.*

REPORT FROM STANDING COMMITTEE ON RAILROADS.

The Committee on Railroads to whom was referred House Resolution No. 66, relative to the corporate existence of the Pittsburg, Fort Wayne & Chicago Railway Company, having had the same under consideration, find that said company is not a corporation under the laws of this State; that the line of railway in this State run and operated by said company, is so run and operated without authority of law; that said company has no authority to make contracts or appropriate private property within this State; that said company has increased its capital stock seventy per cent. without authority of law, and that the lease made by said company of that part of its railway which lies in this State is void, and that the public welfare requires that the legal status of said company shall be inquired into by a court of law having jurisdiction in such cases. They, therefore, recommend the adoption of the following joint resolution:

Resolved, That the Attorney General of this State be, and he hereby is directed to cause proceedings in the nature of *quo warranto* to be instituted against said company, and to prosecute the same to final judgment with diligence. As to the other matters contained in said resolution the committee would ask for further time for their consideration.

[Signed]

E. H. GASTON,
GEO. W. STEELE,
H. W. CURTIS,
D. J. CALLEN,
G. H. HILL,
J. C. WALDRON.

A bill to provide a sinking fund for the State has passed the South Carolina Legislature. Under its provisions one-sixth of the bonded debt of the State will be purchased and canceled during the year.

Codify the Laws.

Among the many valuable recommendations for the good of the railways of Ohio, given in the last Annual Report of Commissioner WRIGHT, none is of more importance than that for the "Compilation of Charters and General Laws." Under this head the Commissioner says:

"We have very few railroad companies in Ohio operated as they were originally chartered, or incorporated. Nearly all have either changed their names or amalgamated with other companies, or their roads have been sold, leased or consolidated.

"All these changes have been based upon legal rights acquired by special charter, amendments or general laws, commencing with the first charters granted, and extending down to the last session of the General Assembly, a period of nearly forty years. In all this time no full and complete compilation of charters or revision of the laws relating to railroads has been made, and it is now *next to impossible* to ascertain what the chartered rights of many companies are.

"By the general railroad laws of February 11, 1848 and May 1, 1852, any railroad company having a special charter can accept any of the provisions of those acts by resolution of their board of directors, and no other record is required than an entry on the minute book of the company. Hence, a complete compilation of charters can not be made, or the rights of each company ascertained without an examination of all original charters or general laws, and amendments thereto, and the action taken by each company under the same and in some cases the proceedings had in courts and judicial sales and decrees.

"With the view of obtaining a full and complete history of the original charters and corporate changes and present rights claimed by every company in the State, circulars were sent to each and the work was partially performed, but several companies have not yet reported all their corporate changes and the work is yet incomplete.

"It is found that the publication of these charters with the annual report would render it exceedingly cumbersome, and I respectfully suggest the propriety of having the same published in a separate volume and a full and complete record made and kept in this office.

"No general legislation intended to place all companies on an equal footing can be safely attempted without a knowledge of the rights and privileges now enjoyed or claimed by each."

It would be a wise movement on the part of the Legislature to appoint a competent commission at once for this purpose. Why not authorize the legal portion of the Railroad Committee of the House to do this?—Mr. CALLEN, its distinguished chairman, is a good lawyer, active, and energetic, and intelligent upon the railway affairs of the State.

Such a compilation would be of great value to every law library, as well as to the railroad companies and the people.

There ought to be no further delay in so important a matter.

Wm. Kemp, Hannibal Green, Townsend Burden, Chester Griswold and Walter F. Warner, of Troy, New York, have been appointed, by the Board of Trade of that city, a committee to secure a survey of a proper line of Railway to Guiderland, in Albany county, so as to connect the city of Troy with the Albany & Susquehanna Railroad.

Central Water Line—Chesapeake and Ohio Canal.

The Kentucky Legislature, during its recent session, adopted the following joint resolutions relative to that important national work, the Chesapeake and Ohio Canal. The resolutions, as adopted, were offered by Hon. T. Wrightson, the Senator from Campbell, as a substitute for similar resolutions that had been offered by Hon. Lyttleton Cooke, of Louisville:

WHEREAS, The State of Virginia and the Chesapeake and Ohio Canal Company have resisted every overture made to them by foreign capitalists for the surrender of their franchises in the Kanawha and James River canal route, and have thus given evidence that it is the wish of Virginia, the magnanimous donator of the great North-west Territory, to provide for that territory a highway from the Ohio river to tide-water, that shall be divested of all private interest, and, as near as possible, free to the whole nation, therefore,

Resolved, by the General Assembly of the Commonwealth of Kentucky, That we look upon this channel of communication, first advocated by General George Washington, between the valley of the Mississippi and the Atlantic, as a work of National importance, one involving vital interest not only to the Western States, but to those on the Western and Eastern slope of the Alleghanies; a promotive of the welfare of all.

Resolved, That said line of water communication of the Kanawha and James River, their headwaters being but 28½ miles apart, is entitled to receive the careful considerations of Congress, to the end that, being a work of National importance, it may receive such aid from the General Government, under its authority to regulate commerce between the states, as will secure its early completion.

Resolved, That we recommend that the work of construction and operation be placed by Congress in the charge of nine trustees, one of whom should be the Secretary of the Interior, four appointed by the President of the United States, by and with the advice and consent of the Senate, and one each in like manner by the States of Virginia, West Virginia, Ohio and Kentucky.

Resolved, That the Governor of Kentucky is hereby requested to forward copies of the foregoing resolutions to the President of the United States, with the request that the same shall be by him laid before Congress; that copies be also forwarded to the Governors of the several States, with the request that they be laid before their respective Legislatures, and that our Senators and Representatives in Congress be requested by the Governor to use their best endeavors to secure the passage of such measures as will conduce to the early construction of the works.

Fossil Bones have been found in the shaft of a lead mine near Galena, Ill., at a depth of 153 feet below the surface, and under the first layer of rocks. Teeth, bones and skulls have been discovered among layer of various kinds of rock and lead ore. The fossil remains were first exposed at a depth of 90 feet, and were found from that point for a distance of 63 feet to the bottom of the shaft.

Illinois Central Railroad.

From the American Railroad Journal.

The receipts from operations of this road for the year ending December 31, 1869, were as follows:

From freight.....	\$4,602,817 06
From passengers.....	1,702,629 35
From sleeping cars.....	24,547 00
From extra baggage.....	2,028 73
From mails.....	76,372 22
From express.....	179,179 83
From rent of property.....	115,625 73
From rent of cars.....	23,371 63
From dockage.....	13,426 25

\$6,739,997 80

Net earnings over Chicago, Burlington & Quincy R. R., as per contract.....

546,899 64

Net earnings over Peoria & Oquawka R. R., as per contract.....

94,100 46

Total earnings in Illinois...\$7,380,997 90

Earnings over leased lines in Iowa:

Dubuque & Sioux City.....\$1,290,588 63

Iowa Falls & Sioux City (5 months).....

40,924 16

Cedar Falls & Minnesota.....

110,971 51

Total.....\$8,823,482 20

Less operating expenses, viz.:

Salaries.....\$ 175,620 29

General expenses 257,959 93

Legal expenses.. 17,365 22

Claims and damages..... 68,501 88

Station expenses. 691,587 00

Freight train expenses..... 740,036 34

Passenger expenses..... 252,713 30

Repairs of engines..... 569,755 87

Repairs of cars... 494,451 15

Repairs of tools, etc..... 53,228 78

Cleaning engines 54,340 33

Cleaning cars.... 17,977 43

Equip't expenses 56,724 65

Repairs of road.. 1,215,207 88

Rep's of bridges 98,820 98

Rep's of fencing 107,062 26

Operating S t.

Chas. Air Line. 7,567 12

Insurance 40,673 79

4,924,594 2

Leaving net earnings.....\$3,898,888 00

Deduct:

Charter tax paid

State of Illinois...\$464,933 31

Charter tax paid

State of Iowa..... 14,424 84

Rent of leased lines 532,154 47

\$1,011,512 62

Add:

Amount applicable to Interest Fund, as per Land Office Report.....\$318,325 24

Amount applicable to Free Land Fund, as per Land Office Report..... 446,815 59

765,140 83

Net amount, as shown in General Balance Sheet.....\$3,652,516 21

GENERAL STATEMENT OF ACCOUNTS.

Balance of net cash assets as shown in last annual report...	\$2,012,927 83
Gross earnings, as above, in 1869	8,823,482 20
Net receipts of Land Department	2,422,850 83
Decrease in working stock of supplies.....	79,912 36
Six per cent. Sterling Redemption Bonds, issued in exchange for 6 per cent. Construction Bonds.....	103,500 00
	<hr/>
Permanent expenditures.....	\$13,442,673 22
Operation expenses, as above..	\$884,776 99
Tax paid the State of Illinois, being 7 per cent. on the gross earnings for the year ending Oct. 31, 1869	4,924,594 20
Tax paid the State of Iowa on the gross earnings of leased lines to Dec. 31, 1869.....	461,933 31
Rent of leased lines in Iowa for the year ending Dec. 31, 1869.....	14,424 84
Interest on funded debt.....	532,154 47
Sterling exchange on coupons payable in London.....	580,900 00
Dividends paid in 1869, being 10 per cent. on the capital stock, and including United States tax.....	64,536 90
	<hr/>
Bonds purchased in 1869:	
7 per cent. Construction	2,660,247 37
6 per cent. Construction.....	
Sterling Redemption. 28,000	
Currency Redemption 60,500	
	<hr/>
Construction 6 per cents received in exchange for new Sterling Redemption Bonds..	858,000 00
Premiums and commissions paid on bonds called, purchased and exchanged.....	103,500 00
Amount of construction bond fund	143,825 09
Balance, consisting of net cash assets in New York and Chicago, and exclusive of the working stock of supplies....	519,500 00
	<hr/>
	1,691,280 05
	<hr/>
	\$13,442,673 22

It will be seen that the gross earnings were \$8,823,482 20; working expenses, \$4,924,594 20; State taxes, \$479,358 15, and rent of leased lines in Iowa, \$532,154 47; leaving net earnings \$2,887,375 38, against \$2,414,984 58 in 1868, being a gain of \$472,390 80, or 19½ per cent. The per centage of expenses to earnings, including State taxes, was 61.25 per cent., against 64.37 in 1868.

The gross earnings in Illinois were \$7,380,997 90, and the net \$2,732,756 16, being an increase over last year of \$438,009 43.

The gross earnings of the leased lines, included in above amount, were \$1,442,484 30, working expenses \$741,285 77, State taxes \$14,424 84, and rent \$532,154 47, leaving a net profit of \$154,619 22. The President, in his report, says:

It will be observed that there is an increase of 103½ miles in leased lines in Iowa, as compared with last report. The extension comprises 54 miles of the Cedar Falls & Minnesota Railroad, and 49 miles of the Iowa Falls & Sioux City Railroad, making a total length

of 258½ miles now worked in Iowa. The harvest has been ample, and we have found profitable employment there for all the motive power and rolling stock we have been able to spare from the line in Illinois. The Iowa line has been worked successfully; the great benefit resulting has been found in the increase of traffic upon the line in Illinois north of Mendota.

As the Southern States have become more prosperous, our traffic with that section has considerably increased. I recommend the most intimate relations with the railways of the South, and with that view shall deem the construction of a line from Columbus to Cairo most fortunate for this company, the distance being 24 miles, and the line, when built, placing us in connection by rail with the Mobile & Ohio Railroad.

The tonnage hauled during the year was 1,601,972 tons, against 1,439,675 in 1868, and the average distance each ton was hauled was 158.14 miles, against 157 miles in 1868. This, owing to the decline in the value of cereals, has been transported at a considerably reduced rate per ton per mile, as compared with the previous year.

Our expenditures on maintenance of way during the year amounted to \$1,314,028 86, which includes the cost of 8,255.6 tons new iron. The length of track relaid with new iron was 85.35 miles, and with repaired iron 75.42 miles, of which 14.76 miles with new iron, and 3.77 miles with repaired iron, were in Iowa. Of the \$98,820 98 charged to account of bridging, a large amount was expended in the cost of six spans of iron bridge over the Illinois river, replacing the same length of wooden bridge.

The amount charged to permanent expenditure was \$884,776 99, of which \$431,592 70 was for construction, and \$441,713 for equipment. Construction includes the cost of ballasting with rock and gravel 52.78 miles of track, amount, \$93,313 50; bridging, \$67,923 03; new station buildings, \$73,181 43; additional water works, 18,063 20; 9.24 miles of new sidings, \$125,953 73. Of the total amount charged to construction, \$60,815 91 was expended on leased lines for new sidings, ballasting, station buildings, etc. The track has been improved, motive power and rolling stock have been well maintained, important additions having been made to both during the year by building 7 new engines and 380 cars.

The bridge across the Mississippi, between Dunleith and Dubuque, opened on the 1st of January, 1869, has been used successfully, and enabled us to transport, without interruption, a large amount of freight.

The amount paid for dividends, including Government tax, during the year, was two million six hundred and sixty thousand two hundred and forty-seven dollars and thirty-seven cents; six hundred and forty-five thousand four hundred and thirty-six dollars and ninety cents was paid for interest on Funded Debt and Sterling Exchange, leaving a balance of one million six hundred and ninety-one thousand two hundred and eighty dollars and five cents cash assets. We hold a stock of working supplies costing seven hundred and twenty-six dollars and ninety-three cents; a fund of five hundred and nineteen thousand and five hundred dollars set aside for the purchase of Construction Bonds, and two million five hundred and seventy-nine thousand dollars of Construction Bonds in hands of Trustees in anticipation of collections. It will be observed that the net from traffic in Illinois

was more than equal to our dividend in 1869.

The Funded Debt was reduced \$858,000, and on the 1st of January amounted to \$8,519,500, or, deducting the special fund above referred to, leaves an even sum of \$8,000,000.

The low price of wheat, and the almost total failure of corn through the central portion of the State, made it difficult for the farmers to pay up in full to the Land Department. The collections amounted to \$2,551,717 70. During the year there were surrendered to the Trustees \$1,467,000 of Construction Bonds. Of the \$3,335,774 Construction Bonds now in hands of Trustees, \$2,579,000 are in advance of collections. There were 85,860 acres sold to 1,521 purchasers, for \$899,348 71, being an average of \$10.48 per acre, and of 56 acres to each purchaser. Up to the close of the year, 1,356,830.51 acres of the original grant of land had been deeded to purchasers, and returns thereof made to the State authorities. The amount owing to the Company for lands sold was \$1,492,351 60, and the number of acres unsold, 457,779 17, of which nearly 400,000 acres are located south of the center of the State.

The annual meeting of the shareholders will be held in Chicago, on Wednesday, the 25th day of May next. The term of service of three Directors will expire at that date.

GENERAL BALANCE SHEET.

Permanent expenditures.....	\$32,785,264 30
Int't and dividend account.....	\$12,480,571 32
Less avails of interest fund.....	3,652,516 21
	<hr/>
	8,828,055 11
Net cash assets New York and Chicago.....	1,691,280 05
Working stock of supplies.....	764,226 93
Premium paid on bonds delivered Land Department in anticipation of collections.....	129,563 61
	<hr/>
	\$44,198,380 00
Capital stock.....	\$25,278,710 00
Canceled bond scrip.....	18,170 00
	<hr/>
Funded debt:	
Construction bonds due April 1, 1875, 7 per cent.....	\$3,187,500
Construction bonds due April 1, 1875, 6 per cent.....	332,600
Currency Redemption bonds due April 1, 1890.....	2,500,000
Sterling Redemp'n bonds due April 1, 1875.....	2,500,000
	<hr/>
	\$8,519,500
Less Construction Bond Fund.....	519,500
	<hr/>
	8,000,000 00
Bonds Delivered Land Department.....	\$13,480,500
Less in hands of Trustees.....	2,579,000
	<hr/>
	10,901,500 00
	<hr/>
	\$44,198,380 00
	<hr/>
NET CASH ASSETS.	
Cash assets, New York office.....	\$1,653,990 18
Less sundry coupons.....	104,687 88
	<hr/>
	\$1,549,302 30

Cash assets Chi-	
cago office.....	\$865,614 74
Less liabilities.....	723,636 99
	<u>141,977 75</u>

Total amount at debit in General balance sheet.....	\$1,691,280 05
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PERMANENT EXPENDITURES.

Construction.....	\$431,592 70
Equipment.....	441,713 00
Engineering expenses.....	7,905 99
Right of way.....	3,565 30
	<u>\$884,776 99</u>

Add amount at debit of this account in last annual report	31,900,487 31
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Total amount at debit in General Balance Sheet.....	\$32,785,264 30
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INTEREST ACCOUNT.

Construction bond coupons, April and October.....	\$277,495 00
Interest on redemption bonds, in currency.....	152,910 00
Int'est on sterling redemption bonds.....	150,495 00
Premium on sterling exchange to pay coupons in London.....	64,536 90
	<u>\$645,436 90</u>

Dividends on share:

Divid of Feb., 1869, 5 per cent.	\$1,263,580 00
Divid of Aug., 1869, 5 per cent.	1,263,655 00
U. S. tax on above.....	133,012 37
	<u>2,660,247 37</u>

Add amount at debit of this account in last Annual Rep't	9,174,887 05
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Total amount at debit in General Balance Sheet.....	\$12,480,571 32
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Capital stock has been increased \$1,440 by the conversion of canceled bond scrip.

The working stock of supplies consist of wood, coal, etc., on Chicago, North and Iowa Divisions, \$64,135 78; engineering materials and tools, \$361,847 37; materials at shops, \$334,732 01; stationery, \$3,511 77—total, at debit in General Balance Sheet, \$764,226 93.

The lands remaining unsold are located as follows: on Main Line—between Cairo and the Ohio and Mississippi Railroad, 272,812 52 acres; between the Ohio & Mississippi Railroad and Decatur, 61,054 64; between Decatur and Dixon, 17,794 26; between Dixon and Dunleith, 16,533 02. On the Chicago Branch—between the Ohio & Mississippi Railroad and Tolono, 54,355 14; and between Tolono and Chicago, 35,729 59—total, 457,779 17 acres.

During the year 7 new first class engines were built at the Company's works, making the number owned by them at the close of the year 177; of these, 30 were employed on passenger trains, 107 on freight, 24 on other trains, and 16 undergoing repairs. Forty-two engines have received general repairs, 54 thorough repairs, of which 10 have been rebuilt, and 5 have been altered to burn coal, leaving but 3 wood burners on the road.

The number of miles run by engines with passenger trains was 1,225,430; with freight trains, 3,437,972; with construction trains, 15,483; switching, 497,316—total, 5,414,303, an increase of 820,857 over the previous

year. Cost of repairs, \$610,566 03. Cost of repairs per mile run, 11.27 cents against 12.72 cents in 1868. The total cost per mile, including wages, fuel, oil, waste, tallow and cleaning, has been 25.49 cents, against 27.57 cents in 1868, 29.62 cents in 1867, and 32.67 cents in 1866—the total cost being \$1,381,349 88, against \$1,266,531 96 in 1868, and \$1,116,102 66 in 1867. The cost of oil, waste and tallow per mile run, has been 0.73 cents; of fuel, 6.56 cents. Average miles run to a pint oil, 14.37; to a ton of coal, 37.07.

The Company have 85 passenger, 1 officers', 1 pay, 41 baggage, mail and express, 13 sleeping, 2,481 grain, 50 Blue Line, 320 stock, 319 flat, 1,019 coal, 2 powder, 4 derrick, 3 tool and 2 tank cars, and 4 large and 10 small snow plows. There have been added to the rolling stock 4 sleeping, 2 baggage and smokers', 224 grain and 150 flat cars. Six passenger and 102 freight cars were rebuilt. 4,790 new wheels were used in repairs of cars during the year. The cost of repairing passenger cars has been 4.19 cents, and of freight cars 0.67 cents per mile run.

The total number of passengers carried was 1,399,416—an increase over the previous year of 86,785. Number carried 1 mile, 53,306,016—an increase of 5,678,195. Average number of miles traveled by each passenger, 38.09. Average fare of each passenger, \$1 50 28. Revenue per mile of road, \$2,178 13.

Tons of freight transported, 1,601,972—an increase of 162,297. Tons carried one mile, 253,336,118—an increase of 27,482,708. Tons carried one mile north, 131,855,431; do south, 121,480,687. Tons of local freight carried one mile, 242,140,616; do, through do., 11,195,502. Average distance each ton was carried, 158.14 miles. Average revenue per ton, \$3 93 88. Revenue per mile of road, \$6,535 33 64.

The amount of expenditures in road department has been, for operation, \$1,607,773 37, and permanent, \$441,959 53. There were used in repairs of road, 341,179 cross ties, 591,720 lbs. spike, 21,262 chairs, 60,609 fish plates and bolts, 33,198 bars of new iron, 45,383 bars of repaired iron, 10,921 bars of old iron, and 1,073 bars of steel and steel headed rail. The length of track relaid was 183 46 miles.

President, John M. Douglass; Directors, His Excellency, John M. Palmer, Governor of Illinois, Ex-Officio, Thomas E. Walker, Wilson G. Hunt, Jonathan Sturges, until May, 1870, R. Daniel Wolterbeck, Cunningham Borthwick, H. H. Hunnewell, until May, 1871, Abram S. Hewitt, William Tracy, W. H. Osborn, until May, 1872, Henry Chauncey, George Bliss, John M. Douglass, until May, 1873; General Superintendent, Marvin Hughitt; Treasurer, Thomas E. Walker; Land Commissioner, John B. Calhoun.

VIRGINIA.—The new Constitution of Virginia forbids the increase of her bonded debt, unless for paying obligations already due. It allows the Legislature to withdraw bonds already issued by exchanging therefor bonds and stock held by the State in Internal Improvement Companies. The Governor recommends that the outstanding obligations of the State, of every nature, be funded into a Virginia consol bond bearing semi-annual coupons at the rate of 6 per cent. These coupons to be receivable for all State dues, and to bear a provision to this effect on their face. The Governor estimates the property of the State at about \$723,000,000.

Elasticity in Track and Rolling Stock.

No matter how perfect the track and superstructure may be, the more perfect the elastic system of the rolling stock, the better it is for both. The true secret of the success of many of the ill-built American railways is in the elastic character of the rolling stock; by this we mean the arrangement of springs for taking up the shocks at the many uneven points at the track, enabling it to pass curves easily. The general character of the road-beds in this country is far below that of the prominent roads in Great Britain and on the Continent. The larger and better roads there approach perfection; that is, they are smooth and straight in comparison with American roads, so that engines and cars with little elasticity and long wheel base are run with very good results. The same rolling stock put upon American roads would pound itself to pieces very shortly. While foreign engineers have made the character of the road-beds a matter of the first importance, the Americans, by the had character of theirs, have been compelled to pay more attention to the elastic principle of the rolling stock. The Americans can well imitate their foreign brethren in the excellence of their road-beds, and they, in return, pay as much attention to the elastic principle in rolling stock. The nearer they both approach perfection in both respects, the longer "life" is insured to both the track and rolling stock. A gentleman informs us that he has often ridden over a Prussian railway, in a car thirty or forty feet in length, with hardly any springs, and though the movement was hard and rigid, yet it was very smooth, while the expenses of road-bed repairs were very small compared to those of this country. Such a road-bed as that, with the better class of American rolling stock, would seem to approach perfection in railway travel, giving the maximum of comfort to the traveler and the minimum of expense in operation.

Starting with a well-drained and well-balanced road-bed, laid with a rail stiff enough to allow no deflection between the sleepers or at the joints, and add to this rolling stock, arranged to take up the concussion from all vertical or horizontal blows resulting either from slight obstructions on the rail or a possible defect at the joint, or from sharp curves, and it would seem that the combination is as near perfection as is possible with our present ideas of the allowable cost of railway construction. The devices for securing the requisite elasticity in the track are many. In the first place, we rely upon the ballast and the wooden cross-tie; then again chairs are packed with wood or rubber, or some other material more or less elastic. All these are very important, slight as they may seem to the unformed. Then, in the rolling stock, there are many devices for taking up the sidewise or lateral motion at high speed; then in passing curves we have Fairlie's device, enabling engines of long wheel-base to pass curves of very sharp radii, and Bissell's and Hudson's arrangement for the same object—both of great value; then for tenders, we have Bissell's device, allowing entire flexibility between the hack and forward trucks, so that all abrasion or crowding of the wheels against the rails is prevented, even in the sharpest curves, giving longer "life" to wheels and axles, and much greater ease in carrying the load. Griggs' elastic wheel, for both locomotives and cars, is another very important improvement, saving the wear of wheels, tyres, and every other part of the rolling stock. The

well-known swing-beam device in long passenger cars is another standard improvement of great practical value, so far as comfort or economy is concerned. So far as we can apply elasticity and flexibility without destroying the requisite steadiness of movement, we are proceeding in the right direction, saving at the same time the road-bed, superstructure and rolling stock, and are, in fact, obeying the true mechanical and natural law.—*American Railway Times*.

Virginia.

The recent message of Governor Walker to the Legislature, delivered after the final admission of the State by Congress, is invested with peculiar interest. The Governor leaves politics alone, and deals almost entirely with the affairs which properly come within the domain of State Legislation. The exhibit of the debt and resources of the State, January 1, 1870, exhibit the following results:

DEBT.

Old funded debt.....	\$32,779,262 94
New funded debt, and to be funded.....	7,884,973 56
Interest due and unpaid on new funded debt.....	1,611,335 17
Interest due and unpaid on old funded debt.....	3,384,776 33
James River and Kanawha bonds	212,430 00
Total.....	\$45,872,778 00

As an offset to this debt, there is a large amount of securities returned as assets in the shape of bonds and investments in various canal, railroad and turnpike companies, amounting to an aggregate of \$43,702,359. Of these, the Governor regards only \$2,612,766 as perfectly safe. A further total of \$10,048,267 he regards as available in a few years. The balance, amounting to \$31,041,326 he looks upon as lost to the State, although increasing the taxable value of property. The annual interest on the State debt is \$2,760,000, and the Governor thinks that its payment can be commanded on July 1, 1871. The expenses of the State, inclusive of interest, for the fiscal year, ending Sept. 30, 1869, when the State was under military government, was \$700,000. Next year he estimates that the expenses will be only \$550,000. The sum required to be raised for the current fiscal year for State expenses and payment of interest, is estimated at \$3,664,255. It is proposed to raise this money by a tax of 40 cents on each \$100 worth of property, estimated as likely to yield \$2,892,464. The balance, \$471,793, is proposed to be raised by licenses, taxes, etc. The total actual value of real and personal property in the commonwealth is estimated at \$723,115,589. The Governor gives some practical suggestions for the reorganization of the State debt and the payment of the interest. Altogether, the Message is calculated to inspire confidence in the ability of the State to pay all its obligations.

The main elements of the future prosperity of Virginia may be regarded as white immigration and internal improvements. Of the first, as we have stated, the indications are hopeful. In relation to railroad developments, the most important is the plan for the completion of the Chesapeake and Ohio Railroad; 227 miles are now in operation, leaving only 200 miles, now partially constructed,

to complete the line between Richmond, at a point 150 miles above Cincinnati. The road, when completed, will connect with the great railroad arteries of the South and West, and will open the rich mineral and agricultural resources of Virginia to commerce.

The James River and Kanawha Canal may be regarded as more important to Virginia and the entire country than any other enterprise now before the public. It is designed to establish an entirely new water route from the Mississippi to the Atlantic Ocean at Norfolk. The water line proper commences at the head of navigation on the Ohio river, at the mouth of the Kanawha. By deepening the Kanawha and Greenbrier rivers, a total of 208 miles of additional river navigation may be gained. The canal proper then commences, and runs for a distance of 275 miles, across the Alleghany mountains to the head of tide water on the James river. The aggregate distance from the Ohio to Norfolk is 611 miles. The canal proper is to be 70 feet wide at the surface, sloping down to 52 feet at the bottom, with 7 feet depth of water and a capacity for boats of 280 tons. This will give a capacity one-sixth larger than the enlarged Erie canal. This canal offers a through route connecting the Atlantic seaboard with the entire system of Southern and Western navigation, and offers immense advantages to the Eastern States and the South and South-west. It is eminently national, and its completion is only a question of time. It was a favorite project of the statesmen of the times of Washington and Jefferson, and, after many delays, seems likely to be constructed at no distant period.

NEW FREIGHT CARS.—We have lately examined a new freight car, constructed by the Mobile and Ohio Railroad Company, at Whistler, from plans made by and under the immediate direction of the Chief Engineer and General Superintendent. This car is the first one of three hundred which the company are building for the St. Louis business, to run through from Mobile to St. Louis without breaking bulk. It possesses some new and interesting features, which are best described by an intelligent and experienced superintendent of another road as "entirely removing all danger from the falling of brakes and swinging beams, the pulling out of draw-heads, and the breaking of bunters." It is said that cars upon this plan can be kept in order at thirty per cent. less cost than those constructed upon the usual plans, besides entire immunity from accidents of the kind referred to. We understand that it is the intention of the company to load this car with coffee of direct importation, and send it through to St. Louis as soon as the inclined planes and steamer for transferring cars are finished.

The Brooks Insulator.

David Brooks has issued a circular pamphlet in reference to his patent Paraffine Insulator. This circular contains about forty certificates. Some are from the highest authorities in this country and in Europe. Professor Morse, in his late report to Congress, speaks of this invention in the highest terms.

Besides certificates, the pamphlet contains an interesting article on the subject of insulation. The American certificates are from railroad companies who have adopted this insulator with great success.

But the greatest proof of its worth is the

guarantee of the inventor. This guarantee is to exceed the ordinary glass insulator, in wet weather, one hundred times, which is equivalent to exceeding the English standard of a megohm per mile fifty times; and he agrees to maintain for any length of time this immense difference, at a compensation of two dollars per mile per annum, for one wire, and three dollars per mile for two wires.

Although the first cost of this insulator is about twice that of the ordinary insulator, the subsequent cost of maintenance makes the Paraffine Insulator much the cheaper, not taking into account the vast difference in results obtained.—*Telegrapher*, March 5th.

The insulators most in use by the telegraph companies in this country, are the common glass. Twenty years since, this style of insulator was generally used in Europe; but porcelain was substituted to so great an advantage that in five years, say fifteen years ago, there was scarcely a glass insulator in use, and European telegraphers now look upon the era of glass insulators as among the dark ages of the telegraph. Porcelain, though inferior to the Brooks, is vastly superior to glass. The only reason why glass has been so much used by telegraph companies, is on account of its cheapness—or rather less first cost.

If telegraph companies had been organized for the simple purpose of doing a legitimate telegraph business, glass insulators would not at this day be used; but a different object was in view, and that object—speculation. The money subscribed to build lines went into the pockets of the originators of these schemes, except a very small portion, and this portion was expended for the cheapest of material. If the money subscribed had been honestly applied, telegraph stocks would have proved a better investment.

The Western Union Telegraph lines were an aggregate of these flimsy and ephemeral structures, but they are now being rebuilt in a very substantial manner, and this improved insulator used with great success.

The same can be said of the railroad companies using this insulator. Their wires are put up for the purpose of telegraphing, and not as a speculation.

THE RAILROAD GAZETTE.

A JOURNAL OF TRANSPORTATION.

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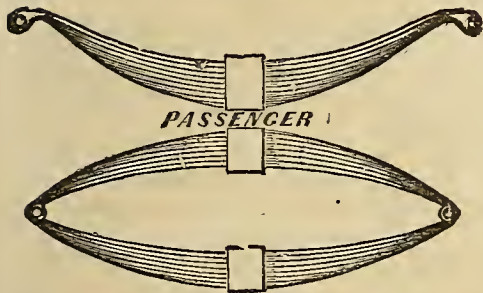
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9.45 P. M. LIGHTNING EXPRESS, daily. Arrives Dayton, 12.01 A. M.; Urbana, 1.26 A. M.; Galion, 4.00 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.56 A. M. (Bkfst); Akron, 7.33 A. M.; Ravenna, 8.20 A. M.; Meadville, 11.16 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.10 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

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The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
*St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
*Lawrenceburg Accommodation.....	4.30 pm	8.25 am

*The 10.20 p.m. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

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Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7.40 A. M.	6.30 P. M.
do do do	9.45 P. M.	7.00 A. M.
Toledo, Detroit & Canada.....	7.15 A. M.	10.25 P. M.
do do do	6.30 P. M.	7.00 A. M.
Lima, Fort Wayne & Chicago.....	7.15 A. M.	10.25 P. M.
do do do	2.30 P. M.	5.40 P. M.
do do do	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo.....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	2.30 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo.....	6.30 P. M.	10.20 A. M.
Muncie & Indianapolis	7.15 A. M.	10.25 P. M.
do do	5.00 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond.....	7.15 A. M.	10.25 P. M.
do do	5.00 P. M.	10.30 P. M.
Hamilton Accommodation.....	9.30 A. M.	8.05 A. M.
do do .....	.....	6.50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots, East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

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	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	9.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

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The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

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CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Eason with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

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FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckabannock, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily. (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:40, 2:40 3:00, 3:30, 3:45, 4:15, 4.30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:40, 7:2 7:40, 8:40, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Oranwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON,
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, APRIL 14, 1870.

The Railroad Record,

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The Northern Pacific Railroad.

The Northern Pacific Railroad Company is an applicant to Congress, not for any money subsidy, but for the amount of lands it ought reasonably and properly to have. We are informed that this is the state of fact:

"THE NORTHERN PACIFIC RAILROAD BILL, about which there is so much talk in the Senate, has for its object three things, viz: to make a land grant for the branch line from Portland, Oregon, to Puget Sound, which now has nothing but the right of way; to authorize the company to mortgage its whole line and all its lands, and to give it more land than it can now get under the existing laws. The chief debate is on the provision last named. The original act of six years ago gives the company the odd sections of land within ten miles on each side the line in Wisconsin, Minnesota, and Oregon, and within twenty miles on each side in all the Territories. Since it was passed, settlers have taken up some land in the States, and the company now asks to have the original grant made good by an extension of ten miles on each side the line of the limit within which it may make selections."

We do not see why there should be a debate on that question, for the country has settled long since, that railroads going through public lands should have land grants. The only debate has been, whether the Pacific roads should have money subsidies. After the immense money subsidy to the Union Pacific, the politicians seem to have arrived at a sudden exhibition of virtue. What was a very good and wise thing in the Union Pacific, has suddenly become a very bad thing in other roads similarly situated. But, granting that there is virtue in refusing money

subsidies, we can see none in refusing a grant of land, which has been conceded to all roads in the public territories; and, especially, if the Northern Pacific—for want of money which the Union received—has lost time, and by that means lost lands which were once granted, it is no more than common justice that an equal amount shall be restored.

We believe, as we have expressed it heretofore in the RECORD, that the time is not distant, when the Northern Pacific will be the most important outlet to the Pacific and the Asiatic trade. It can not be forgotten, that the more northern the road the narrower is the area to be crossed, and the better portion of China to be reached. Nor, is it an unimportant consideration, that in the Northern Pacific there are no barren plains to be crossed until we reach the mountain ranges.

Take a map, and let us examine together the character of the countries to be crossed. Omaha is considered the starting point of the Union Pacific. Now take a point due north, where the Northern Pacific is supposed to cross the same line of longitude, we find it to be Breckinridge on the Red River of the North, and something more than 300 miles north of Omaha. Now, passing west from Omaha—except in the Valley of the Platte—we pass over barren plains, and at 300 miles, begin to lose all good lands, but very narrow strips, and are soon in the mountains, and thence, for a thousand miles, there is a comparatively barren and unproductive country. This is the great difficulty of the Union Pacific, and notwithstanding that road has an immense grant of lands, but a very small part of them can be made available.

Now, compare this with the Northern Pacific. It is 250 miles from the Red River to the Missouri, at the Mandan villages. It is 200 miles more to the forks of the Yellow Stone in Montana. It is 300 miles more to the source of the Missouri, at the base of the mountains. There are, at least, 750 miles, in which the Northern Pacific passes through a fertile country, rich in resources, and for the greater part traversed by navigable waters. Here is the first great advantage, and it is a very great one, which the Northern Pacific will certainly have. For 800 miles, from the crossing of Red River to Virginia City, there will probably be a dense population. The whole road on this route will be lined with towns and cities, and surrounded by a fine agricultural country, self-supporting, and productive. In 200 miles more, it will have passed the mountains, and in 600 miles from the source of the Missouri, will have reached Puget's Sound, and disembogue itself on the tide waters of the Pacific. Not more than 1,400, at most 1,500 miles from the longitude of Omaha, and the Northern Pacific reaches the ocean. In any event, it will be shorter than the Union Pacific. It will pass through

a vastly more productive country, and if all accounts are correct, it will be even less liable to be obstructed by snows.

We see then, that the Northern Pacific has *per se* much the greatest advantages. It will be a century before any large population can live on the main line of the Union Pacific; while the whole country from Minnesota to the Rocky Mountains, on the Northern Pacific will become populous and rich, as rapidly as did Michigan and Wisconsin.

Let us now look out on the Pacific, and we find that from Puget's Sound we pass over to Northern Japan and Northern China on a much shorter route than can be done from San Francisco. In fine, we perceive at once the great fact, that the Northern Pacific must be both much shorter and a much better route between the Atlantic and Asia, than the Union Pacific can possibly be. Hence we conclude, that it is the duty of Government to aid the Northern Pacific in every way within its power. If it has lost lands by delay, there ought not to be a moment's hesitation in making up that loss. That whole region will be valuable, and only from this fact will it be possible to make the road with the lands.

Congress ought, immediately, to grant whatever amount of lands was originally agreed upon, and if any of them have been forfeited by actual settlers taking possession, should be replaced by others. In this way, we may hope to see the Northern Pacific made. When made, we undertake to say, that no public work made in this country ever developed the settlement and resources of the country as this work will.

The people of the north of Europe, Norwegians, Swedes and Danes are coming to this country now in great numbers, and they prefer the northern rim of the United States. They settle in Wisconsin and Minnesota, and are going on to Dacotah. For 800 miles, as we have shown, they will find good lands and a well watered country, healthy and productive. But this is not all, north of the Pacific, where no railroad is, and where none is likely to be for a long time to come, is an immense tract of country, to which this road would furnish the only accessible route. This is the Valley of the Red River, and the valley beyond of the Saskatchewan. This is an immense country if all accounts are true—a good country. The Northern Pacific will have a branch down the Valley of Red River, which, being continued would reach that whole country. Thus the Northern Pacific would first cause the settlement of Dacotah, Montana, and the Valley of the Red River, and then draw from them their whole traffic over its own line. Leaving out of view the immense subsidy (now amounting to about \$70,000,000), the prospects of great profit and success to the Northern Pacific, are greater than they were for the Union Pacific.

The Iron Manufacture in Ohio.

General Garfield, in a late speech in Congress, said there were nineteen furnaces in his district. He might have added that ten years ago there were but six, and that they were only half the capacity of what they are now. These furnaces are near Youngstown, on the borders of Mahoning and Trumbull counties. General Garfield also said that, in obedience to the interests of his constituents, he should vote for a tariff on iron; but intimated that the protective tariff had better be reduced, because the Democrats were free traders and were going to swoop down upon us. It turned out there were only two free traders in the House (Democrats), Cox and Mungen. This is rather a small body to attack the protective tariff; but small as it is, we doubt whether a half dozen more can be found in the House. Garfield does very well to go for the interests of his constituents, but we can not think it very well for a man as well read and enlightened as he is, to attack the protective tariff at this time of day. No man who has read Welles' and Hewitt's Reports, and had access to statistical documents, can fail to know that the cost of labor in Europe is less than half what it is here; and that, therefore, the protective tariff is not so much a protection to the manufacturer as to the laborer. Unless Garfield wishes to reduce the American laborer to the same condition with the half-fed laborer of Europe, or the other alternative of having the factories broken up, he is not doing well—for he is not supporting American labor, or supporting American manufactures; but we let this pass, and proceed to Ohio iron.

The manufacture of iron in Southern Ohio, though not increased in the same ratio with that of the Youngstown region, has, nevertheless, increased very decidedly, and Ohio makes four times as much iron now as she did ten years ago. The pig iron now made in Ohio amounts to 250,000 tons; but this is only a small part of what may be made. We anticipate that the manufacture of pig iron in Ohio will, in a few years, amount to a million of tons. The manufacture of pig iron now brings ten millions of dollars to the State, and the secondary manufacture of iron amounts to twenty millions. We suppose that the iron manufacture in Ohio must soon come to an hundred millions per annum. This shows an interest of immense value, and rapidly increasing.

The recent increase of the iron production is due principally to two causes. First, the discovery and use of the Brier Hill coal near Youngstown; and second, improved modes of manufacture. The Brier Hill coal is not very uncommon, but it is found only in special localities. It is the open, or furnace burning, coal, which is, therefore, specially adopted to making iron. Brier Hill is on the border of Mahoning and Trumbull counties,

and there coal is abundant; but fortunately for the iron manufactures, that is by no means the only locality. There is a great deposit of this coal in the Hocking Valley. Professor Andrews, one of the Geological Corps, says that this kind of coal may be found on six hundred square miles in the Hocking Valley. There is little reason to doubt that this coal is equal to any bituminous coal whatever, and that the Hocking Valley is to be the great center of primary manufactures in Ohio. Nelsonville and Straitsville are both in this region. Great and wealthy companies have been formed to mine coal and manufacture in that section, and it only requires a little time and organization to develop a vast industry.

Another great cause of increased iron production, is the greatly improved mode of manufactures. A part of this improvement consists in increasing both the diameter and height of the furnace, by which they make a great deal more iron out of the same quantity of ore. Simple as the improvement is it has not been introduced by half the furnace men of the State. Yet they must all introduce it, or the old furnaces will be undersold and be obliged to stop.

The Cleveland District (Scotland) makes iron cheaper than any other place in the world, and there they carry the stack up from one to two hundred feet, and there one ton of coke makes a ton of iron, while our furnaces require three tons. We must come to the economy and science of making iron, or we shall not be able to compete with those who do work economically and scientifically.

But, in addition to the improvements in making pig iron, there are immense improvements in making bar iron and steel. In making bar iron, the great improvement is in the Ellershausen process. It is thus described:

"The Ellershausen process may be explained in very few words. We have seen that pig iron consists of pure metallic iron with four to five per cent. of carbon, while the richer iron ores consist mainly of iron and oxygen. Ellershausen's theory, was that iron ore could be mingled with cast iron in such a way, that the oxygen of the ore would unite with the carbon of the pig metal, and passing off as carbonic acid, leave the iron of both elements in the combination, in the metallic state. The experiment was first tried by drawing a ladle of molten iron from the furnace and stirring into it a quantity of iron ore. The change anticipated began at once, and the iron assumed a pasty condition which rendered it impossible to stir it with a bar. Substituting a wooden rod, the materials were mingled and were made to form a ball similar to that collected in the puddling furnace by the rabble. This ball heated, squeezed and rolled, was found to furnish a fair article of bar iron. Subsequently there was substituted for the ladle a wheel eighteen feet in diameter, bearing on its margin a series of hoxes. This wheel was made to revolve beneath a stream of molten iron and pulverized ore that crossed each

other at right angles. By the rotation of the wheel the hoxes were gradually filled with layers of iron mixed with ore. When each contained a sufficient quantity, the sides were removed and the blooms transferred to the puddling furnaces, these reheated until the slag they contain were ejected.

In the RECORD we have formerly described the manufacture of steel, by the Bessemer process. But the following is a very clear account by Dr. Newberry:

THE BESSEMER PROCESS.

"Perhaps the best illustration of the progressive character of the iron manufacture is furnished by recent improvements in the manufacture of steel. You will remember that steel is iron with one per cent. of carbon; or cast iron from which three-fourths of the carbon have been removed. Fifteen years ago, all our steel was made by what is called the 'Cementation process;' so well known that I need not describe it. About this time Mr. Bessemer, an English iron-master, conceived the plan of forcing common air into melted pig iron, and thus, by bringing its oxygen in contact with the carbon, to induce the formation of carbonic acid, eliminate the carbon and produce malleable iron; or, by arresting the process at a certain point, to leave the fluid metal in the condition of cast steel. Upon trial the injection of even cold air into molten iron, instead of chilling it as many predicted, produced active ignition and intense heat. This was the germ of the famous Bessemer process for the manufacture of steel; a process by which fully one-half the steel now made is produced, and by which, as has been stated, the cost of steel has been reduced at least one-half. Many years elapsed before Mr. Bessemer succeeded in overcoming all the mechanical difficulties which stood in his way, and in silencing the opposition which the conservatism of the iron manufacture offered. Now the process may be said to be not only a success but a triumph; and its author deserves to be regarded as one of the greatest benefactors of the human race. For the production of steel, which was his aim, Mr. Bessemer proposed to arrest the combustion of the carbon in the iron, so as to leave about one per cent. unconsumed. This point was found difficult to hit, and he ultimately adopted the method of adding, after the process was complete, the requisite quantity of carbon in the form of *spiegeleisen* a highly carbonized cast iron. This is the course generally adopted."

City Debts in the United States.

Boston.....	\$16,950,500
Brooklyn.....	14,139,419
Buffalo.....	850,500
Baltimore.....	24,947,935
Cleveland.....	1,581,100
Chicago.....	11,000,000
Cincinnati.....	5,010,000
Detroit.....	3,272,195
Louisville.....	4,952,199
Memphis.....	3,623,792
New York City.....	35,000,000
New Orleans.....	10,740,850
Philadelphia.....	36,737,735
Pittsburg.....	3,160,000
San Francisco.....	4,709,100
St. Louis.....	12,642,000

—The Directors of the Jefferson Railway Company have subscribed \$100,000 to the St. Louis Air Line.

Cincinnati, Hamilton & Dayton Railroad Company.

PRESIDENT'S OFFICE, }
Cincinnati, April 5, 1870. }

To the Stockholders :

It has recently come to the knowledge of the undersigned that a concerted movement is making on the part of certain stockholders of the Cincinnati, Hamilton & Dayton Railroad Company to control the choice of Directors at the ensuing election, for the purpose of effecting a change in its management. It is impossible, of course, for me to know, in detail, the charges and specifications which are represented by those actively engaged in this movement, as the grounds on which they justify the contemplated change. But, after serving the company as President for more than twenty years with fidelity, and, as I believe, with success to the stockholders, it is impossible for me to permit the stockholders to be arrayed against me without a statement of my connections with the road, in vindication of its management.

In doing so you will allow me to refer to a few facts in connection with my management of the affairs of the road.

On the 4th of July, 1848, I was elected President by the unanimous choice of the Directors, many of whom have gone to their graves, honored and lamented by all who knew their worth. The business of raising the means, obtaining the right of way, constructing and managing a railroad was then new to me, as it was to our board at that early period in the history of such enterprises; and I assumed the duties with much hesitation and many misgivings. A strong desire to accomplish some good for a city in which I had been prospered, induced me to assume the heavy labor of the enterprise. That final success would attend the effort of building a railroad through the rich valley of the Great Miami, I felt assured; but I had no conception of the years of toil and anxiety that it would be necessary to go through before it was accomplished.

Millions of the money contributed to the enterprise was invested at my personal solicitation, and on my assurance given that I would, so long as health and life lasted, protect the interest until its final success. Most of those who originally subscribed for the stock still hold the same. Those who have died have left large amounts in trust for their heirs, among whom are many widows and orphans dependent for their incomes, in part or in whole, upon the dividends to be derived from your road.

Whether the just expectations of my friends who have given me their continued confidence for so many years have been realized, may be best answered by stating a few facts:

Notwithstanding that in the course of twenty years many mistakes may have been made, incident to a business but little understood, because of its comparatively recent origin, still the financial credit of the company has never been shaken. It has never failed to meet promptly all its obligations, large or small. It has never asked for or received any aid from either counties, townships or cities.

There have been several periods in the history of the company when a large floating debt, created for the purpose of providing facilities for a growing business, and to secure that from connecting roads, has been carried upon the individual responsibility of the President and Directors.

The total amount subscribed in aid of the building of the Dayton & Michigan, the Springfield & Columbus, the Eaton & Hamilton, Richmond & Miami and Junction Indianapolis roads, connecting with ours at different points, has been \$334,500; and although that amount has long since been carried to profit and loss account, the amount of profit on the business received from these roads has been tenfold that of the investment, and will continue to be a source from which will come large amounts of tariff, and fully demonstrates the action of the company to have been judicious.

In the whole history of the road I can name but one which many consider an injudicious investment; and that was made in order to secure permanently the business and good will of our then most important railroad connection, which it retains to this day, I allude to the sum of \$116,308 invested in boats on Lake Erie, before there were any through rail connections between the East and West, at the earnest solicitation of the Cincinnati, Sandusky & Cleveland Company, formerly the Mad River & Lake Erie.

I am aware that many think our investment in providing the facilities for the business of the Atlantic & Great Western and Erie Railroad has proved unfortunate. Such is not the case. The new business, local as well as through, derived from this source, has paid the company a satisfactory return for its investment, and we see no reason why it should not continue to do so. It was a necessity at the time, for, had the expenditure not then been made, we should most certainly have had a most powerful competition in our Valley. This company would not have consented, at the time, to the outlay, but the agreement of the President and some of the Directors of the Little Miami Company to share in the expense of the work, and the loss or gain, which agreement that company finally declined to carry out, leaving ours to bear the burden; and, at this day, we see no reason to regret that they did not join us. The expenditure consisted, chiefly, in the purchase of additional iron, with which to provide a broad gauge track of four rails. No new machinery was purchased by our company, our narrow gauge locomotives being used to haul the broad gauge cars of the Atlantic & Great Western and Erie Companies. This iron will all be wanted for a second track, to accommodate the increased traffic of our road, by the time when, it is believed, the Erie Company will find it to their interest and be able to conform their gauge to other roads of the country.

The aid thus rendered to our connecting roads, and the fair and liberal course pursued toward them in the interchange of business, has resulted in our maintaining the most friendly relations and good will of all of them, as well as in an increase of traffic three-fold which it might otherwise have been.

Our company, in one respect has been very fortunate. Properly appreciating, at the commencement of the enterprise, the growth of our city, and of the country contiguous to it, and especially of the Great Miami Valley, through which the road was to be located, they secured a large amount of real estate within our city limits for railroad purposes at a small cost. This property embraces the two blocks bounded by Fifth, Sixth, George, Hoadly and Baymiller streets, besides a strip of land two hundred feet in width connecting and extending from Freeman street, which is now one of the principal thoroughfares of

our city to Millcreek, a distance of nearly one mile, which is in daily use for the delivery of lumber, coal and other commodities. This property is now worth more than ten times its original cost, though it stands upon our books for the sum paid, without including interest. The location of our depots on this ground, although at that time generally esteemed to be too remote from business, is now found to be about the center of the population of our city, and convenient to its great business.

Your road, which carried over it some 200 passengers and 300 tons of freight a day, and earned about \$300,000, gross, the first year it was opened, is now carrying upward of 2,000 passengers and about an average of 2,000 tons of freight per day, and earning gross per annum about a million and a quarter of dollars on sixty miles. If in the future it is wisely and honestly managed its earnings and profits will largely increase. If, on the contrary, it should fall into the hands of speculators and traders in stocks and bonds, its final will not be such as those who originated it had reason to hope for. If the capital is kept where it now is there may still be another road built through the valley of the Great Miami to accommodate the growing business of the country and city, and still a satisfactory dividend be earned for its stockholders. The danger which threatens most is that speculators will want to get possession of the road and water the stock for immediate profit.

The road and its equipment are now in excellent condition, and operated at an expense far below the average of the most successful roads of our country.

The whole property is worth now several millions more than it stands charged with upon the company's books, and as represented by stocks and bonds. It owes not a dollar of floating debt; has the means to pay a cash dividend of four per cent. without borrowing a dollar, with other assets on hand that are good, amounting to \$250,000. Its net earnings the past year have been 11 per cent., and no unfavorable cause is apprehended as to the future earnings.

Notwithstanding the large yearly expenditures made in the past to keep pace with the growth of business, the books of the company show that for eighteen years—from the first opening of the road to the present time—an average dividend has been earned and paid to the stockholders of eight and a half per cent. per annum—six of which have been paid in cash, and two and a half in stock or bonds.

The stock has not commanded a price in the market more than three-fourths its intrinsic value, owing to the fact that the dividends have recently been made in bonds of another corporation, instead of in cash; and that small amounts of shares have been floating on the market without any concerted action of the friends of the company to maintain the price, and from the fact that there has been, and is still, a constant effort kept up to depreciate the market value of the stock, with a view to its purchase.

The knowledge that the company is now out of debt, and prepared to pay cash instead of scrip dividends the present month, has caused a material advance in the market price, and I can see no reason why it should not advance to par before this year closes, and continue there, or above. The declaration heretofore made by me that the stock was intrinsically worth par in gold will yet be

proven to some of our doubting stockholders.

With such a showing we may be excused for asking where there is a road which has been better managed?

I can not but feel that the present is a critical period—a turning point—in the history of the road, when having seen and passed through its greatest depression its prospects for the future, under a judicious and experienced management, are better than ever before.

Already under the certain resumption and maintenance of cash dividends—its floating debt, contracted necessarily in the improvement of lines and the increase of its machinery and stock for the transaction of business, extinguished, and the payment of dividends in stock consequently no longer necessary—its stock has commenced to appreciate, with every reason to believe that it will continue to advance to its intrinsic value and maintain its position. The result is due to the present management, embarrassed and thwarted to some extent, by the acts of some, who are unfriendly to the road, and rivals for its business, by the schemes of others, who are interested in depressing the market value of the stock, that they may speculate upon what they know must be its certain rise and ultimate value, and the want of any concerted effort on the part of others, who are largely interested as stockholders, in combining to maintain its price in proportion to its value. This appreciation, now taking place, is artfully attributed to the prospect of a change in the management, instead of being credited as it ought to be, to the prudence and skill of those who have brought it about.

In the meantime other railroad combinations have taken place, which under a prudent and conservative management of this company, must open for it new and wider fields for business, and if skillfully occupied, will establish its prosperity upon an unassailable foundation. But to do this requires the continuance, for the present at least, of those friendly arrangements and relations with other railroad interests, and of that experience and knowledge in the management of this line, acquired by twenty years' familiarity with the situation and operation of the system. These promised advantages, so important and valuable in the present position of the road, are greatly endangered by the existence of parties among the stockholders, formed for the purpose of revolutionizing the policy of the company, necessarily, if successful, resulting in deranging its organization and personnel, and based, as it is and must be upon a withdrawal of confidence on the part of the stockholders in their managers, will certainly tend to diminish the confidence of others in the permanence and stability of its future operations and management. If any change in the direction should become, from any cause, either necessary or desirable, the preservation of their own interests should obviously dictate to the stockholders that it should be neither sudden nor abrupt, nor made in a spirit of hostility and partisan strife, but introduced and educated with the experience and knowledge which can only be transmitted to a successor in a legitimate, and not a revolutionary spirit.

It would be wrong not to add the remark, that at the first opening of the road for business, I secured competent officers to manage the various departments of business who had seen previous service on the best New England railroads, and that most of them remain

with us to this day. Others have been educated to fill the places of those who have left. They have all proven honest, competent, faithful and industrious.

I must be allowed before closing this already too lengthy paper to say something personal to myself. In conducting a business of such magnitude for a period of twenty-two years, it was not to be expected but that I should make some enemies. I have, however, the satisfaction to know that during all that time, through good and through evil report, under dark and bright periods, the original stockholders have stood by and given me their support. The opposition originates from a few individuals who purchased the stock on speculation, after persistently bearing it down by misrepresentation to the lowest market price it ever reached, and who have still continued to bear and to purchase in the hope that they would ultimately be able to destroy the confidence of the stockholders in the management of the road, and get possession of it for their own private ends. Of themselves they do not own more than a tenth of the stock; but they have succeeded by misrepresentation of misleading a very considerable number of our stockholders, and they proclaim now that at the next election they hope to change the management.

Numerous charges are made against me, personally, with a view to accomplish their purposes, among which is one that myself and family have grown rich out of my connection with the road.

In answer to this it might be sufficient to say that after a residence in this city for 60 years, 43 of which have been spent in active business life, without impeachment or blemish as to my honesty, that I have never made a dollar beyond my small salary, nor is any member of my family or connection better off by one cent for my having the control of the road for so long a period.

When I took hold of the enterprise, in the year 1848, I had what was then considered in the West a handsome estate in our city, earned mostly by previous close application to business for twenty-one years at the head of the Cincinnati *Gazette*. What I then owned, with its increase, makes up what I now have. It would in all probability have been trebled had I not been connected with the road; but the satisfaction that I feel at having done my duty to those who confided their means to my keeping, and of having contributed my full share to the building up of Cincinnati, is worth more to me than money.

I have no personal desire to continue in the office of President of the company. I have for several years looked forward to the arrival of the time when I could properly, in justice to the interests originally confided to me, decline the further execution of the trust; when the company, free from debt, paying to its stockholders in cash a fair dividend, was in a condition of permanent prosperity.

That period has in fact arrived, and I could now, without injustice to any one, carry out the intention dictated by my own desire for ease and rest. But, in face of the present movement, I could not, consistently with my own self-respect or my sense of obligation I owe to the stockholders, voluntarily take that course without at least an effort to place the affairs of the company in the hands of those who, in my opinion, are entitled to the confidence of its stockholders, and thus to secure the results which have been obtained.

Respectfully yours,

S. S. L'HOMMEDIÉ, President.

Economy of Steel Rails.

From the Journal of the Franklin Institute, Feb., 1870.

The following calculations exhibit very clearly the great economy of using hammered steel rails on all roads which have so heavy a traffic that four years will fairly represent the average life of the best unhammered iron rails. The cost of re-rolling is estimated at \$30 per ton, and the loss, at each renewal, from wear of iron, expense of taking up and relaying, and other contingencies at \$15 per ton.

Duration of Steel Rails	20 yrs.	40 yrs.	60 yrs.
Cost of best hammered steel rails..	110	110	110
Compound interest at 6 per cent..	242	1,021	3,516
Total cost of steel rails.....	352	1,131	3,623
Cost of iron rails.....	76	76	76
Compound interest.....	167	705	2,431
Expense of re-rolling.....	140	445	1,330
Compound interest.....	153	1,241	4,819
Total cost of iron rails.....	577	2,323	7,946
Deduct cost of steel rails.....	352	1,131	3,623
Saving per ton by using steel.....	224	1,197	4,317
Present worth of saving.....	69	116	130
Present saving per mile.....	6,995	11,640	13,088
Increase of dividend on a road costing \$40,000 per mile, per cent.....	17.49	29.10	32.72

Therefore, if the average life of a steel rail is only 20 years (=5 iron rails), it is as cheap to lay steel rails as to lay the best iron rails at a cost of \$6.05 per ton (\$76—69.95 = 6.05).

If the life of steel is 40 years (=10 iron rails), which is probably a moderate estimate, a saving of \$1,040 per mile could be made by laying steel, *even if the best iron rails were offered as a gift.*

If the life of steel is 60 years (=15 iron rails), an estimate which is more than justified by the experience of the Pennsylvania, the Philadelphia, Wilmington and Baltimore and other railroads, and by a long series of experiments at home and abroad, the saving effected, by laying the whole road in steel, would be sufficient to add nearly 2 per cent. to the annual dividends, on a road which could pay 6 per cent. with a track of the best iron rails.

On roads with a lighter traffic, the saving is still an important consideration. If, for example, the life of an iron rail is 10 years, and a steel rail will only wear out five iron rails, the present worth of the saving by the use of steel is \$17.37 per ton, which makes steel rails at \$110 as cheap as the best iron rails would be at \$58.63 per ton.

Even allowing 8 per cent. compound interest for the use of money, it would be cheaper to buy steel rails that would wear out in 20 years, than to pay \$22 for iron rails that would require re-rolling in 4 years.

The great increase of saving on curves or grades, in yards, and in other places where the wear is so great that the life of the best iron rails is two years or less, is shown in the following table, which is computed at the prices now ruling (\$110 per ton for best steel, and \$76 for best iron), allowing 6 per cent. compound interest.

The following table is meant to show the present worth of saving on 100 tons (about 1 mile) of steel rails, taking the wear of iron rails at 2 years, 1 year, 6 months and 3 months respectively, and on the different suppositions that 1 steel rail will equal 3, 5, 10, 15 or 20 iron rails:

Iron wear.	2 yrs.	1 yr.	6 mo.	3 mo.
As 1 to 3.....	\$4,169.41	\$4,850.13	\$5,210.61	\$5,401.48
As 1 to 5.....	10,165.09	12,192.99	13,326.95	14,914.73
As 1 to 10.....	20,330.32	27,247.00	31,037.49	34,829.43
As 1 to 15.....	29,885.40	37,274.41	47,027.31	53,045.19
As 1 to 20.....	29,030.62	46,811.59	61,057.10	70,417.07

There are some roads of heavy traffic, but only a few, which claim that they can get a year's average service for the best iron rails, where the wear is most severe. The above table shows that by substituting a steel rail

which would wear only five years they could effect a saving which would be equivalent to an immediate addition to their capital of \$121.93 on every ton, or \$12,192.99 on every mile of steel laid down. In the extreme case supposed, when the life of an iron rail would be only three months, and the life of a steel rail five years, the saving would be \$70,417.07 per mile.

Canal Steam Navigation.

The Albany correspondent of the *N. Y. Tribune*, under date of March 31st, says:

Whatever may be the result of discussions concerning the Canal debt, so as to allow abolition of tolls, and rendering navigation free between the Atlantic and the Lakes, there is one point of even greater value, about which there are no conflicting opinions, and to which all right-minded, practical men, inside and outside of the Capitol, should turn immediate and persevering attention. The introduction of steam towage is the greatest want of the Erie and Oswego Canals. Any improvement which would quicken transit so as to forward cargoes in half the time now required between the Lakes and tidewater—equivalent to annihilating half the space dividing the Hudson from our inland seas—would be the greatest measure of improvement ever adopted in our internal commerce and navigation since the enlargement of the Erie Canal. With all its present disadvantages—with even its snail-pace in comparison with railway transit—the Erie Canal, in its short season of seven months, now transmits about 700,000 tons more freight than the Erie and Central Railroads combined, with all their vast capital and immense appliances, operating every day through the whole twelve months. Reduce the time between New York and Buffalo one-half, enable voyages to be made with certainty in five or six days, instead of the ten or twelve now ordinarily required, and then behold the great results. The dreams of the men who early advocated the "Enlargement" would be realized, and the present prophecies of Auditor Bell and State Engineer Richmond would quickly become practical realities. And what is necessary to insure this beneficent commercial revolution? Nothing but the introduction of steam-towage, for securing a speed of even three miles, instead of the present mile-and-a-half an hour. It may well amaze the commercial world that this great object is left unaccomplished till this year 1870, while steam has been effecting miracles almost everywhere else during the nine years since the Erie Canal was enlarged. The Auditor and the State Engineer, in their latest reports, concur in urging the adoption of means for immediately introducing steam in even this moderate extent. Assemblyman Allaben's resolution, referred to the Canal Committee last evening, proposes a large reward for the best mode of steam-towage, and not less than four bills have been introduced by other members for promoting the object.

As a specimen of the prevalent feeling concerning the need of applying steam for quickening canal navigation, was the passage to a third reading, to-day, of the Senatorial bill for allowing privileges to a company for introducing "the European mode of canal steam-towage"—particulars of which bill were given in *The Tribune* when the bill was introduced. Two other bills, introduced in Assembly, propose to accomplish the great object in other ways.

Finance and Trade.

The continued decline in the gold premium has had an unsettling effect in the general markets, and the volume of trade, since our last, has been more than usually light. The mercantile classes are a good deal perplexed by the course of events, and the general disposition is to await a more settled or definite aspect of affairs, before entering upon fresh business involving large amounts of money. The present phase of the financial situation is, indeed, a fruitful theme, and its discussion reveals an almost universal desire for a prompt closing up of the now narrow chasm between gold and the currency. As to the possible consequences of speedy resumption, however, there is a great diversity of views. Many sagacious observers hold that it would be the height of folly to undertake specie payment without counting the cost, or making due preparations to ensure its success and continuance when initiated, while others, equally competent to reach a sound conclusion, think there are few, if any, serious impediments to its prompt adoption—that to conjure up all the possible obstacles in the way of its success and treat them as if they constituted an organized force, constantly ready to hurl themselves on the Treasury at the precise moment when Government should announce its readiness to pay its obligations in gold, is simply absurd. We can not, of course, undertake to decide which is the more correct theory, though from the wonderfully improved credit of the nation, and the universal depreciation of an inconvertible currency, we believe the transition could be made with far less difficulty than has generally been supposed. Under the old State Banks, the question of resumption had far greater difficulties to encounter than will be felt now under the present system. Even the last resumption, after the suspension of 1857, passed off without the slightest ripple. All the predictions that had been made of commercial disaster were falsified. Specie flowed to the banks everywhere, instead of flowing from them, and resumption was accomplished without seriously disturbing any interest in the country. So far as European money markets are concerned, there will probably never be a more favorable opportunity for resumption than the present. There is not only a superabundance of money in all the leading centres, but business and manufacturing enterprises are greatly depressed, and with our national credit restored, foreign capitalists are naturally looking in this direction to invest their means, where they are assured of good rates and certain returns. Besides these favorable circumstances and conditions, the remaining surplus of cotton, together with other leading exportable staples, is probably sufficient to afford the necessary supply of exchange between this time and next autumn, for the regulation of our foreign trade balance, without necessitating any considerable drain of coin. Taking into consideration all the elements, we can not but believe that the period for the doing away with the expensive evils of a fluctuating currency is not remote.—*N. Y. Shipping List*, March 9.

There were 709,387 tons of iron ore shipped from the Lake Superior mines during 1869, of the total value of \$3,166,190; and there were 59,504 tons of iron made at the Lake Superior furnaces during the same period, of the total value of \$1,802,245.

Curious Facts About Copper.

We clip the following from the *Boston Journal of Chemistry*:—"A report has lately been made to the French Academy of Sciences upon the exemption from cholera of men engaged in working with copper. Statistics obtained under the supervision of the commissaries of police, and therefore to be relied upon as accurate, show that whenever the manipulation of copper was carried on, the workmen have almost invariably escaped unharmed, and, moreover, that the exemption was in exact proportion to the degree in which the metal was handled by the men. During the epidemics of 1865 and 1866 the number of deaths was only 3 out of every 10,000 adults employed in the working of copper. Of goldsmiths, silversmiths, and watch-makers, the mortality was 1 to every 719 employed, among foundry lamp-makers, and workers in bronze, imitation jewelry, and copper utensils, it was 1 to 2000; while among opticians, makers of mathematical and musical instruments, dry polishers, stampers, and turners there was not a single death among the whole number of 5,650 persons. Further testimony in favor of the preservative action of copper was supplied by the society known as the *Bon Accord*, which was founded in 1819, and entirely composed of workers in bronze, and the medical registers of which are thoroughly well kept. During the five visitations of cholera, this society, the members of which were scattered in quarters where the epidemic raged with the greatest virulence, had not only not had a single death, but had been called upon to pay for 106 days of sickness, divided among ten members of the society. Facts supporting the theory were also supplied from other sources. The conclusion drawn from this statement was that if the further inquiries established the truth of the theory, exceedingly valuable results, from a hygienic point of view, would follow. Since the publication of these facts a M. Adeline has invented what he calls an 'anti-cholera tissue,' a woven fabric in which a certain quantity of wire is introduced for the purpose of serving as a prophylactic. The contrivance appears to be indorsed by respectable scientific and medical authorities in France."

A writer in *Cosmos* gives some facts in regard to the preservation of wood by solutions of salts of copper. He has in his possession wooden water wheels which have been in use for more than 1,500 years for removing water from a copper mine. These wheels are about 18 feet in diameter; and an analysis of M. Payen of a portion of the wood, shows that it is perfectly sound, and is partly converted into a compound of cellulose and copper.

It appears, moreover, that the decay of stone may be prevented by the black oxide of salts of copper. M. Robert has proved that the decay of granite, marble, limestone, sandstone, and other building stones, is very largely due to a very minute lichen (*Lepra Antiquitatis*); and that this cryptogamic plant does not grow upon the stone pedestals of bronze statues, or those parts of buildings to which bronze or copper ornaments are fastened. In such cases the stone is protected by the salts of copper, which are gradually formed under the influence of the weather, and are washed down by the rain; these compounds being poisonous to the plants. Abundant illustrations of these facts are found among the old buildings of Paris, and they are very important on account of the length of time which has elapsed since the protective action of the copper compounds began.

Lake Superior.

THE IRON AND COPPER MINES AND THE COMMERCE OF 1869.

According to the figures in the detailed annual report of the Portage *Lake Mining Gazette* we find that there are 17 mines in the Portage District, 7 in the Keweenaw, and 12 in the Ontonagon—in all 34, which yielded in 1868 a total of 13,048 tons of metal; in 1869, 15,288 tons—which gives an increase of 2,239 tons. The production of ingot copper amounted to 12,200 tons, valued at \$5,368,000, compared with 9,985 tons in 1868, worth \$4,592,000. The total gross product since 1845 has been 128,275 tons; the total of ingot copper, 99,440 tons, valued at \$56,661,000. The business of 1869 has required assessments on the stock of 8 companies of from 15 cts. to \$2 per share—the sum thus raised being \$176,000. Since 1845, 110 companies have paid in assessments (from \$2,000—"Sharon" to \$910,000—"Isle Royale" each \$16,646,500. Among those requiring greatest outlay have been the Albany and Boston (conglomerate), \$615,000; Amygdaloid, \$470,000; Copper Falls, \$510,000; Hancock, \$530,000; Hecla, \$500,000; Huron, \$500,000; Isle Royale, \$910,000; Minnesota, \$436,000; Pennsylvania, \$500,000; Phoenix, \$760,000; Shelden and Columbian, \$460,000; South Pewabic, \$500,000; Toltec, \$420,000. These mines have paid an aggregate of \$300,000; dividends from the earnings of 1869—an excess of \$124,000 over the amount of assessments on other companies. The total of dividends declared from the beginning—9 mines—has been \$6,370,000. The total proceeds—sales of copper and assessments—have been thus \$73,307,500—\$66,837,500 in excess of dividends. The per centage of dividends to total proceeds has been 8 07; of dividends to copper sales 11.24, and of dividends to assessments 38.26.

The gross tons of iron ore shipped from 13 mines amounted to 643,238, compared with 493,200 in 1868—an increase of 149,948 tons.

The total pig iron product—10 mines, was 38,504 tons, against 36,425 in 1868, an increase of 2,079 tons.

The total product since 1856 has been—ore, 2,912,224 tons; pig, 191,312—valued at \$22,460,005.

The Portage Lake business has employed a total of 57 vessels—4 steamboats, 14 propellers, 32 schooners, 5 barks, 1 brig, 1 tug. The arrivals, both ways, have numbered 392. The total tonnage has been 156,696, against 132,217 in 1868—an increase of 24,479 tons. Of lumber 13,332,210 feet was handled, and of brick, 466,800 M.

Houghton Co. (Portage Lake District) takes the lead in results in the copper region, the value of its copper product having increased \$776,000; copper assessments having decreased \$50,000; and dividends having increased \$180,000. The net balance in favor of the mining interest in that Co. in 1869, shows an increase of \$530,000.

PRESERVATION OF STONE.—Dr. Robert, in the Paris *Les Mondes*, maintains that the use of black oxide of copper, and its salts, will effectually prevent decay in stone. He shows that the decay of granite, marble, limestones, sandstones, and all natural building stones is the combined effect of various causes, and that among these is a very minute lichen, the *Lepora antiquitatis*, which is one of the worst enemies of stone, and its action is to such an

extent that for instance the beautiful marble sculptures of the well-known *Pare de Versailles* will, unless proper measures be taken for staying the process of decay, be unsightly and ugly masses of dirt, and quite irretrievably lost, as works of art, within the next 50 years. The author, taking as instances such buildings at Paris as the Bourbon Palace, the *Palais du Corps Legislatif*, the Mazarin Palace (*l'Institut*), the Mint, and others, points out that dust, spiders' webs, and the action of the rain combined with the minute lichen above alluded to, hasten the decay of stone, especially of those where any sculpture or ornamental carving promotes the deposition of dirt and dust. Various places and instances are cited of the application of oxide of copper and its salts, which places are open to inspection, and the length of time which has elapsed since such application, seems to warrant the conclusion that these compounds act as preservatives of stone. In reference to granite, the author states that this stone is also, according to the experience of Egyptian engineers, far more readily affected by a moist climate than one would be led to believe. The obelisk of Luxor, brought from Upper Egypt to Paris, has become blanched and full of small cracks, during the 40 years it has stood on the Place de la Concorde; although 40 centuries had not perceptibly affected it as long as it was in Egypt. Granite in a moist climate, becomes the seat of minute cryptogamic plant, which greatly aids its destruction, and it is, moreover, a well-known fact that the disintegration of this stone, which is composed of three separate minerals (quartz, mica and feldspar), depends very greatly upon the thorough and intimate mixture, as well as the chemical composition of these three ingredients, each of which in a separate state more easily withstands the influence of the weather.

AMERICAN STEAMSHIPS.—Some contend that if a British line of steamers to Liverpool were given to an American company, they could not be run in opposition to any other British line of the same class for palpable reasons. The wages and taxation, together with the greater cost of building and repairing vessels in the United States, and the higher value of money here, under our present system, render it impossible for this country to more than keep possession of its coasting trade. Others believe that by freeing from duty the materials used in building vessels and the stores employed in running them, we might again compete in navigation with the other nations of the world.

The different rates of sailors' wages paid by shipmasters of different nations is quite an item. The monthly pay roll of an American ship of 800 tons is \$872 50; that of a British ship of the same dimensions, \$586 34; of a Bremen ship, \$348; a Hamburg ship, \$502; an Austrian, \$352; a Norwegian, \$347, and an Italian, including an allowance for rations, \$600. This shows that the cost of labor alone is one-third greater in this country than in England or in Italy, and more than twice as much as in Germany. For this reason it is impossible for American ships to carry freights as cheaply as British or German ships. There is also another very serious burden weighing upon our shipowners, in the heavy State and municipal taxation to which they are subjected. A ship owned in New York has to pay annually 2½ per cent., or thereabouts, upon her value; while British and German ships are exempt from such cost—and relief might be found in a lighter scale of taxation.

RAILWAYS SUPERSEDING SHIPS.—A "Down Easter" says the war diverted four-fifths of all the Southern products seeking a market in the North from its old "ocean route" to the railways and to the river navigation—and the result is that the latter has been found the most economical. Hence the "decline in American shipping," about which so much is being said, is more due to this cause than anything else. We are told that if we refer to tonnage before the war we shall see that most of it was employed coastwise. Steam communication with Europe is fast superseding the old sailing craft, and if we compare the sailing tonnage of ten years ago with the steam tonnage of to-day, it will be seen that the latter, though numerically smaller, is in bulk now equal to what it was then. And thus we perceive that the opening of our Pacific Railway has still further obviated the necessity for ocean transportation. Within less than ten years it was deemed well nigh impracticable to transport coal, grain and other bulky articles by rail, while the annual reports of our leading railways for the past three years not only tend to prove the practicability of this competition, but its desirability as a matter of profit. It is because of this constantly increasing absorption of transportation by rail, that the public attention is being directed to our railway system, and the public are naturally sensitive upon a point in which they have such a vital interest.

PROPOSED SHIP CANAL.—A ship canal through the narrow neck of land separating Buzzard's Bay from Cape Cod Bay, Mass., is about to be commenced. The canal will be five or six miles long, 300 feet wide, and 24 feet deep at low water. This improvement will shorten the passage of vessels between New York and Boston several hours, and enable their navigators to avoid the open and often stormy sea encountered in the voyage around Cape Cod.—*N. Y. Tribune*.

—The cars on the Alabama and Chattanooga Railroad are now making regular trips to Newton, 90 miles from Chattanooga, and 4½ miles from Gadsden.

—The first twenty miles of the South and North road, in Alabama, are completed south from Decatur, and trains are now running that distance to the Tennessee river.

—The Chicago & North-western Railroad purpose extending their road from Green Bay northward to Menominee, and thence to Marquette.

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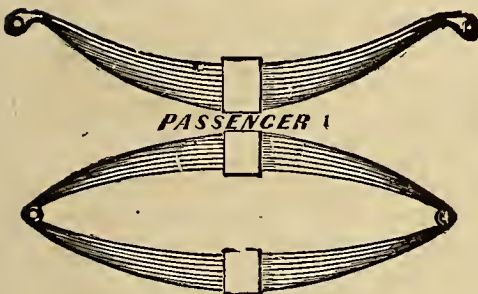
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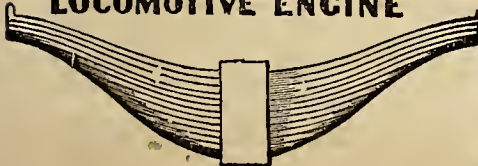
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Profiles and specifications can be found at the office of the company 54 William street, New York, on and after February 1; at Richmond, Va., and at Charleston, W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia. C. P. HUNTINGTON, President.

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St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.30 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

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Harrison Accommodation.....	5.30 pm	7.10 am

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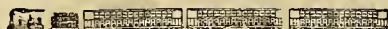
trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)...	7:00 A. M.	6:30 P. M.
do do do do do do do do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	6:30 P. M.	7:00 A. M.
Lima, Fort Wayne & Chicago....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	2:30 P. M.	5:40 P. M.
do do do do do do do do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo...	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo...	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	5:30 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do do do do do do do do	6:30 A. M.	

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Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.09 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7:35 A. M. train runs daily.

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7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:40, 2:10 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:22, 7:40, 8:00, 8:20, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON,
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, APRIL 21, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

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Progress of Railroads.

THEIR REAL EFFECTS ON THE COUNTRY AND ITS PROSPERITY.

Thirty years ago, which is as late as 1840, if any one could have foreseen the progress and results of railroads in this country, the scene would have been to human eyes miraculous. It would have seemed impossible, not to make the roads, but to have expended such vast sums of money—to have done such a prodigious work, and to have reached such results.

We think the national debt enormous, and many persons even think we can not pay it; but we have paid as much as the national debt—in twenty years, in one branch of industry, and that not as an end, but as a means—in merely furnishing facilities for transportation. In the nature of things, this must have been so, for we inhabit a vast continent, full of wonderful resources, and the very first problem was, how to get at those resources and how to transport its products. This was a physical problem involving no moral or intellectual grandeur; but it did involve an amount of industry, and a production of wealth which is really wonderful to look upon.

A railroad is a mere machine; but it is the greatest and most costly machine on earth, which has called forth successfully all the energies of men. This country was the proper theater for its exhibition on a grand scale, and the results are marvelous.

The following is the progress of railroads from 1850 to the present time:

	1850.	1860.	1870.
Miles of Road.	8,588	30,598	42,000
Cost of Roads..	\$295,260,128	\$1,134,432,909	\$2,000,000,000

For 1870, this is, in some degree, an estimate, but based on well known facts, and is not too high. The progress of this work has followed the necessities of the country. Beginning in the commercial ports on short lines, it proceeded to the great agricultural states of the Central West—then to lines connecting the Mississippi with the Atlantic, and lastly to the great line across the continent, soon to be followed, we hope, with others to the north and south of that line, connecting the lakes and the Ohio with the great ports of the Pacific. The largest proportion of railroads is in the great agricultural states of the Central West, Ohio, Indiana and Illinois, and here is precisely where they are mostly useful, as we shall show hereafter.

It will be interesting to note some of the results of railroads, compared with the theories formed of them in the beginning:

1. The great virtue, power and grand results of railroads depend wholly upon one principle, the expansive power of steam. It did not consist in the rails, for rail-roads, literally had been made two hundred years before in England. It was steam which made the rails valuable. It was not merely steam, it was the expansive power of steam. Why not send a locomotive by electro-magnetic power? It has been tried, and succeeded in small power, but electro-magnetism wants the expansive power of steam, and therefore, in order to raise high powers, is too expensive.

2. But, granting the immense power of steam applied to a locomotive, what could a locomotive do on a rail? Here the engineers and the public were at fault in the beginning. Knowing the force of cohesion, and therefore of friction, the engineers decided, in 1825, that railroads can only be used for passengers and light goods. What has been the actual result? Why, that railroads are used for heavy freight more than for anything else! Some of the principal lines of railroad receive two-thirds of their income from heavy freight! The truth is, we have come back to the first principle. The expansive power of steam overcomes friction and all other impediments. It was thought at first, that if a car went at the rate of 30 miles an hour it must meet with an immense obstruction in the column of air displaced; but apparently this obstruction is nothing. The passenger who puts his hand out of the window perceives a strong wind, but that appears to have no influence at all on the train.

3. The engineers decided, that for the same cause—friction and gravitation—the locomotive could not take a train over grades above 50 feet to a mile. This opinion was so prevalent, that when in 1836, surveys were made for the Charleston road, the engineer decided

that the road to Lexington could not go direct by Ridge route, because it would require a grade of from 50 to 60 feet, and therefore, the road must go up the Licking Valley, which the Central Kentucky does, and loses 20 miles between Cincinnati and Lexington. Soon after that time, however, it was demonstrated, that loaded trains could go over grades of 200 feet per mile; of course this was not desirable, or profitable. After that the Baltimore & Ohio Railroad was made with 19 miles, on a grade of 120 feet. So ended the obstructive theory of grades.

3. If these errors of theory were in favor of the railroad system (and they certainly were) another error was by no means in the same direction. The cost of railroads was, until within the last ten years, always assumed at too low a rate. Up to 1860, the average cost of a railroad was always taken to be about \$25,000 or \$30,000 per mile. Indeed, the latter was assumed to be a very extravagant estimate. But by referring to the above table it will be seen, that in 1850 the average cost of railroads per mile was \$37,000, and in 1860 about the same. But if the table for 1870 be correct, railroads have cost \$50,000 per mile, and there is no doubt whatever, that the roads which may be regarded as finished have really cost \$50,000 per mile. The fact is, that railroads are put in operation long before they are finished. More locomotives, more cars, more sidings, more depots are constantly demanded. Hence, for ten years after a railroad is put in operation, its capital, its real cost is constantly increasing. The road may be profitable, and its managers in that case will, probably, pay the additional cost out of the receipts. But the cost is not less real, and not less to be considered as the actual cost of the road.

4. There was another curious result of railroads which was not contemplated in the beginning. The making of railroads was urged by cities and towns, originally with a idea, that the benefit of railroads occurred chiefly to them. In one sense this was true. Railroads were absolutely necessary to the towns, in order that they might continue marts of trade, by bringing the products of the country to them. In one word, railroads were a necessity to them; but relatively speaking, the great advantages did not accrue to them. For example, flour, beef, pork, butter, etc., instead of falling in price, as many supposed they would, actually rose. If flour was \$5 per barrel it rose to \$10. If beef was 10 cents per pound it rose to 20. The railroad had no effect whatever in cheapening the necessities of life, but the contrary. The singular phenomenon was produced, that the whole rise in price enured to the benefit of the farmer. The result of this has been that the whole cost of railroads in the United States has been paid back in the increased value of lands. Although something of this was foreseen, yet it was supposed that the dif-

ference in prices produced by railroads would be divided between the citizens of towns and the farmer. But it has not been so. So far as the increase of prices is concerned, the whole of it has enured to the farmer. And we assert, without fear of contradiction, that there is no section of the country where the farm lands on the route of a proposed road would not be increased in value, by paying the whole cost of the road.

Railroad Legislation.

The Legislature of Ohio adjourned on Monday last without enacting two laws that we deem important to the railroad interests of the State, and that we urged them to enact through the columns of our paper.

The first and most important of these is what is known as the Griffith Bill, that provided a way by which townships and counties could secure the railroad interests they consider for their benefit.

The general demand for relief from the Constitutional restraint upon civil organizations from managing their affairs in their own way, and *aiding* in the construction of works of internal improvement needed for the development of local interests and the promotion of the general welfare, prompted us to advocate the law, not that it is in all its details what we desire, but as the best that could be obtained, and as one that was acceptable to the parties who were to assume the responsibilities under it.

We confess that we saw difficulties in its practical application, and thought that it might not be as readily available as its friends expected, not only because of the unsettled legal doubts about it in the minds of some, but also in the necessary complicity of its detailed working; yet we believe its passage would have been wise. It would have stimulated initiatory movements of some valuable enterprises, and called out a large amount of individual activity, and dormant local capital, that will now remain idle.

For these reasons we regret its failure.

But there is a consoling side to the picture. Since the postponement of this Bill, proceedings have been instituted in this city for the purpose of testing the Constitutionality of the Ferguson Bill. These will be carried through to the Supreme Court of the State and a final judgment had upon it. We are as sanguine as ever we were that the Ferguson Bill is merely the development of a great constitutional principle and will be sustained. If this decision can be had before the conclusion of the next session of the Legislature, there is no reason why the Griffith Bill or some such measure should not then be enacted. This doubt being the great bug-bear in its way this winter. Enterprises can then revive under it, and with fair sailing, can be concluded quite as

quickly as though they had commenced this season.

The real interest of the friends of the Griffith Bill is to have the Ferguson Bill demonstrated to be Constitutional, and all legal doubts and questions about it cleared away and settled, as is now proposed to be done.

The second question we referred to, is the Collating the Railroad Laws of Ohio.

There was no excuse for not doing this. The railroad interests of the State are of great magnitude, involving immense amounts of property and the income of thousands of our people. Every day almost complicates the relations of the various railroad corporations of the State, and changes the legal status of individuals and property to them. The laws governing these affairs have been enacted from time to time for the past thirty years, and are scattered all through the statute books of that period. Some of them are void, others dead letters, and others again conflicting. They ought to be gathered together, arranged in some sort of order, and such decisions as have been had under them reported in foot notes.

This would be a step in the cleaning up process, and would at the same time invite an examination into these laws and secure a better understanding of their force and effect by those who ought to obey them.

The railroad interests of the State are important enough to secure a commission to overlook them. During the past winter, a legal complication demanded at the hands of the Legislature, a committee to look into the question whether one of the greatest companies in the country has not been systematically violating the laws of the State, or has a right to exist in the State at all.

We hope this question will be considered at the next session of the Legislature, and some wise provision enacted to secure the end desired.

Ohio Railroad Laws.

PASSED APRIL 6, 1870.

AN ACT to extend the time for the Completion of Unfinished Railroads.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That in all cases in which any railroad company heretofore incorporated has been duly organized under any law of this state, and has commenced in good faith the construction of any portion of its railroad, and has made expenditures thereon, and the act incorporating said company, or any law of this state, requires the completion, sufficient for use, of said railroad, or any part thereof, within any limited period after the passage of the act incorporating such company, or after the organization thereof, and such company has not so completed said railroad or such specified part thereof within said limited period, and such period has not expired, or has been temporarily extended by order of any court of competent authority or by act of the Legislature of the State of Ohio, it shall be lawful for said

railroad company to proceed in the construction of said railroad or such part thereof, and complete the same at any time within five years from and after the expiration of the time limited by the laws in relation thereto. *Provided*, however, that the provisions of this act shall not apply to any railroad company that has completed any portion of its road under its original or amended charter, and has for ten years previous to the passage of this act abandoned or suspended work upon the remaining portion of its line of road.

SEC. 2. This act shall take effect from its passage.

PASSED APRIL 11, 1870.

AN ACT to enable Railroad Companies to redeem their bonded debts.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That it shall be lawful for any railroad company, incorporated under the laws of this State, for the purpose of providing means for the redemption of its bonds, secured by mortgage or other lien, upon its road, property or income, to issue and dispose of preferred stock to such amount as may be authorized by the stockholders as hereinafter provided for, and to guarantee to the holders thereof semi-annual or quarterly dividends, not exceeding eight per centum per annum, payable at its office, or at such other place as may be designated by the directors.

SEC. 2. The unpreferred stock of the company shall be entitled to dividends only out of the surplus of the profits after setting apart a sum sufficient to pay the dividends upon the preferred stock.

SEC. 3. Before any stock shall be issued under this act, a majority of the directors who desire the same, shall call a meeting of the stockholders of said company, designating the time and place, and distinctly the purpose of said meeting, which meeting shall be held at the principal business office of said company in this State; notice of said meeting shall be given at least thirty days by continued publication in at least two newspapers published and having most general circulation in this State, and one at New York City. If, at said meeting, the consent of a majority in interest of the existing stock of the company shall be given to the issue of such preferred stock of the company, it shall be the duty of the President and Secretary of said company to make out an abstract, stating the total amount of pre-existing stock, the amount of preferred stock authorized, and the vote at said meeting; to which they shall attach copies of said notice and designate the time for which, and papers in which the notices have been published, to which abstract and statement they shall make affidavit, and file the same in the office of the Secretary of State.

SEC. 4. It shall be lawful for the directors of such company to dispose of such preferred stock, on such terms as they may deem advisable in exchange for, or redemption of any outstanding bonds, for the payment of which said company is bound, whether as principal or guarantor, and whether the same have matured or not, or said company may dispose of such stock or any part thereof for cash; but in such event the proceeds thereof shall be set apart and appropriated only to the purchase and redemption of its bonded indebtedness as aforesaid.

SEC. 5. This Act shall take effect from its passage.

Kansas Pacific Railway.

REPORT OF PRESIDENT PERRY.

To the Stockholders of the Kansas Pacific Railway Company:

The board of directors submit herewith their annual report of business, earnings, and general affairs of the company, for the year ending December 31st, 1869.

The gross earnings and expenses of the main line and Leavenworth branch for the year, have been as follows:

EARNINGS FROM FREIGHT.

Commercial.....	\$1,128,848 50
Government	227,358 06
Construction.....	144,212 71

Total freight..... 1,500,419 27

PASSENGERS.

First-class	336,478 52
U. S Troops.....	85,313 42
Expresses	30,179 25
U. S. Mails.....	65,550 00

Total passengers..... 717,521 19

MISCELLANEOUS.

Rents.....	
Individuals and companies.....	4,709 01
Sundry sources.....	3,200 64

Total miscellaneous..... 7,909 65

Total.....\$2,225,850 11

EXPENSES.

Conducting transportation.....	\$331,145 34
Motive power.....	489,457 22
Maintenance of cars.....	101,372 64
Maintenance of way.....	396,221 03
General expenses.....	67,983 83

Total working expenses..... 1,386,180 02

Net Earnings..... \$839,690 09

DISTRIBUTION OF EARNINGS.

Mdse. and passenger traffic	\$703,415 92
Government business.....	378,221 48
Construction material.....	144,212 71

Total..... 2,225,850 11

The average length of road in operation during the year, was 438 55-100 miles, being 35 miles more than in 1868.

The gross earnings were equal to \$5,075 48 per mile of road operated. This is an increase of \$339 85-100 per mile in the earnings of last year.

Total number of passengers carried in 1869 was 146,583—an increase of 37,251, or 34 per cent on the passenger travel of 1868.

Total amount of freight carried in 1869, was 175,508 tons—an increase of 51,141 tons, or over 41 per cent. on the tonnage of 1868.

Average distance one ton freight was transported, 140 miles; average distance one passenger was transported, 66 miles—being 22 miles less for freight, and five miles more for passengers than last year.

It will be observed that the business of the road has been almost entirely of a local character, and a very large proportion of it has been confined to the first 200 miles of the line west of Kansas City. The terminus at Sheridan was in the plains, and offered few facilities for business. Excepting a portion of the New Mexico and Southern Colorado trade, and the Government business for mili-

tary stations in these regions, little through traffic has been done in 1869. The road was not far enough advanced towards the mountains to secure any of the Denver business, and the northern line divided with us the trade of the Arkansas Valley and Santa Fe. With the completion of the road to Denver, all this trade, with that of the rich mineral region to the west and south, gravitates naturally to this route.

The result of the year's business, as shown above, is a gratifying evidence of the wealth and development of the country through which your road runs, and of the permanent value of the enterprise, since the receipts from local traffic alone have been so large, and from year to year shown such a rapid increase.

The regular mercantile traffic for the year shows a handsome increase over that of 1868, and as less than one-eighth of this trade was with points west of Ellsworth, the result gives ample promise for the future local business of the road, when the country adjoining the western half of the line shall become settled with an energetic and thrifty population—such as is now pouring into the eastern countries.

Mercantile traffic in 1869 was 153,015 tons; in 1868, 91,193. Increase, 61,822 tons, or nearly 68 per centum.

A considerable reduction in rates was made in the early part of the year, amounting to an average of ten per cent. on passenger fares, and twenty per cent. on freight rates; and to stimulate the settlement of the lands along the line, larger reductions were made on lumber, grain, household goods, agricultural implements, stock, and other articles necessary to settlers.

The gross receipts from commercial business for 1869 were \$1,703,415 92; for 1868, \$1,281,729 54; showing an increase of \$421,686 38, or 32 9-10 per centum.

Of the freight transported in 1869, 141,341 tons was west bound, and 34,177 tons east bound, showing that freight moving westward was more than four times as great as that moving eastward. This inequality in the movement of freight necessarily increases the expense of operating the road. It will be gradually lessened hereafter, as the country becomes settled up, and the products of the soil seek the Eastern markets; but we look confidently for an immediate return of business from the lumber, coal, cattle and ores of Colorado, as soon as the road is completed and in operation to Denver.

Fifty thousand and forty head of Texas cattle were shipped eastward in 1869, chiefly from the stations of Abeline and Salina.

This class of freight has been materially affected by recent restrictive legislation in the State of Illinois—the leading market for Texas stock—and the shipments over your road were thereby confined to two or three months of the year. With free transit secured for these cattle throughout the year, east of the Mississippi river, a much greater number would be moved by this company.

It is now well established that almost all kinds of stock cattle can be raised more cheaply in Northern Texas, Eastern Colorado, and Western Kansas, regions directly tributary to this line, than in any other portion of the United States, and we may reasonably regard the transportation of stock as one of the permanent sources of revenue to the company. The cattle shipments from the rich grazing lands of Colorado promise soon to rival those heretofore made from Abe-

line—six thousand head being now reported awaiting transportation at Kit Carson, 487 miles from Kansas City.

It is the true policy of the company to stimulate and foster this trade by all proper means, and to afford facilities for shipment as needed at different points on the road.

The expenses of operating the road during 1869 were 62 3-10 per centage of the gross earnings, being eight per cent. more than for the preceding year. This increase in expenses has been due, first to an unusual outlay in the permanent improvement of the road, in correcting alignment, lowering grades, replacing temporary structures by permanent ones, and in generally bringing the road up to a first-class condition; and, second, to the large expenditures rendered necessary by the disastrous floods of June and July, which destroyed several bridges, and swept off a large amount of embankment. The movement of trains over a portion of the line was delayed nearly two weeks by the floods, and it is estimated that the company incurred an expenditure of more than \$100,000 in repairing the damages sustained. At the points menaced by overflow, the track and bridges have been raised above the highest limit of floods, and a recurrence of these disasters is not now anticipated. Such improvements have been made during the year that the general condition of the line is much better than ever before. Further details regarding the transportation department will be found in the accompanying report of the General Superintendent.

The operations of the land department during the year are shown in the following statement:

Acres sold.....	384,185
Cash received.....	\$247,286 49
Notes	760,902 98

Total\$1,008,191 47

Expenses..... 35,551 82

Net proceeds..... \$972,639 65

The total land grant of the company is about 6,000,000 acres, of which 1,000,000 only, lying east of Ellsworth, have been in market during the year. The result of sales is very satisfactory, in view of the active competition existing between the various companies possessing large grants of land in the State. The land department has been efficiently managed, and a good proportion of the settlers moving to Kansas have been secured to the line of this road. Your board are well satisfied that the best interests of the company are served by holding the lands at a fair and moderate price per acre, as an inducement to their speedy settlement, and the wisdom of this policy is shown in the magnitude of the sales made, and the very large increase in the local business of the road.

We believe that the lands of the company are now offered for sale at lower rates, and on more advantageous terms to the purchaser, than any other lands equally fertile and desirable in the country.

EXTENSION TO DENVER.

At the date of your last annual meeting, the western terminus of the road was at Sheridan, 405 miles from the State line of Missouri, and 111 1-15 miles beyond the point to which the bonded aid from the Government extended. This terminus at Sheridan was unsatisfactory, and failed to give the company command of that portion of the Colorado trade which, geographically, should

come to to this line. There was a gap of about 230 miles between Sheridan and Denver, which it was essential to the complete success of this enterprise, should be filled at as early a day as practicable.

Your board in their last report urged the immediate construction of this portion of the line, and gave strong and comprehensive reasons for the work. The recommendations then made were approved by the stockholders, and the construction of the road to Denver decided upon.

Acting under due authority, your board ordered the execution of a mortgage for \$6,500,000, secured upon the road to be constructed (about 237 miles) and on 3,000,000 acres of the company's lands lying between the 394th mile post and Denver, and adjacent to the line. The bonds issued under this mortgage were offered on the market in August last, and it affords your board great pleasure to be able to state that almost the entire loan has been satisfactorily placed, and that the funds are now secured for the completion of the road.

At this date, the track is laid and the road is in operation to Kit Carson, eighty-two miles west of Sheridan. The grading is all under contract, and iron and other material ordered for delivery within the next three months for the remaining one hundred and fifty miles between Kit Carson and Denver, and is expected to have the whole road finished and in operation by September next.

The Denver Pacific Railway and Telegraph Company, with whom a contract was made in accordance with the act of Congress of March 3, 1869, for the construction of that portion of the road between Denver and Cheyenne, one hundred and six miles, have already laid fifty-eight miles of track, and the remaining forty-eight miles will be finished and the road in operation by June 30th next.

The interests of this company dictated the acquiescence of your board in the passage of the act of March 3d, 1869, and in the execution of the contract therein provided. But after its execution, to prevent that road from falling into hostile hands, some individual owners of large interests in your line became the active managers of the Denver Pacific Company, providing the funds for building the road, and successfully negotiating its securities in England, and in order to protect the interests of this company, and to secure permanently the satisfactory management of the line north from Denver, arrangements were made by which your company obtains the ultimate control of a majority of the stock of the Denver Pacific Railway and Telegraph Company; and as a further protection against a ruinous competition in business, a contract was entered into between the two companies to divide equally the gross earnings of 212 miles of the roads nearest to Denver.

The entire line, therefore, between Kansas City and Cheyenne, having a common interest, will, so far as the public is concerned, be operated as one road. It is guaranteed by law "equal advantages and facilities as to rates, time and transportation, without any discrimination of any kind," in its connection with the Union Pacific Railroad at Cheyenne, and thereby becomes a part of a continuous line to the Pacific Ocean. and by the autumn of the present year will enter fairly into the field for a share of the through business with California.

In addition to this through trade, the indications of future business with Colorado are very promising, and your board have reason

to believe that the advantages to accrue from the completion of the road to Denver, as set forth in their last report, have in no respect been over estimated.

The gross earnings of your road for 1870 will probably approximate \$3,000,000, and with the natural growth of trade in Colorado and Kansas, the immigration stimulated by the completion of these railroads, the gross earnings for 1871 will doubtless exceed \$4,000,000.

No positive action on the proposed extension of your road, via the 35th parallel, has been taken since the date of last report. There is at present an unwillingness on the part of Congress to grant further bonded aid to railroads. A bill, however, has been submitted to Congress proposing a grant of lands to this company to aid in the construction of a road from the most eligible point on the line, at or west of Ellsworth, via the Arkansas and Rio Grande rivers to a point on the northern boundary of the Republic of Mexico. This bill has received favorable consideration from the Pacific Railroad committees of both the Senate and House, and should it become a law, will enable the company to commence the work at once. The extension, as proposed in this bill, will form the first link in the great Southern Continental Line to the Pacific Ocean, which the demands of commerce will require to be built before many years.

In conclusion, your board express their acknowledgement for the faithfulness and care with which the various departments of the company have been managed during the year.

By order of the board.

JOHN D. PERRY, Pres't.

At the annual meeting of the stockholders of the Kansas Pacific Railway Company, at Lawrence, on the 4th inst., the following named gentlemen were elected directors for the ensuing year:

John D. Perry, Adolphus Meier, C. S. Greeley, W. M. McPherson, S. M. Edgell, Wm J. Palmer, Roht. E. Carr and Thomas L. Price, of St. Louis; H. J. Jewett, Columbus, O.; John McManus, Reading, Pa., and Thomas A. Scott, Philadelphia, Pa.

John D. Perry was re-elected President, and Adolphus Meier, Vice President; C. S. Greeley, Treasurer; Chas. B. Lamborn, Secretary; Jno. P. Devereux, Land Commissioner; J. P. Usher, Solicitor, and A. Anderson, Gen'l Sup't.

The Railroad Gazette of Chicago, comes to us enlarged, and in every way improved. It is now one of the very best papers of the kind in the country—containing a large amount of practical intelligence for all classes of business men, and railroad men in particular, and is in every respect a worthy representative of the energetic and go-ahead city where it is published.

It ought to be, as we suppose it is, well sustained by the railroad interests of the West.

Cyrus W. Field is before Congress with a project for a new Cable Company, which he desires to have incorporated, with a capital of \$10,000,000 gold, for the purpose of laying a telegraphic cable between our Pacific coast and China and Japan.

Illinois Central Railroad Company.

REPORT FOR THE YEAR ENDING DECEMBER 31st, 1869.

The gross earnings of the Company were \$8,823,482.20; working expenses, \$4,924,594.20; State taxes, \$479,358.15; and rent of leased lines in Iowa, \$532,154.47; leaving net earnings \$2,887,375.38, against \$2,414,984.58 in 1868, being a gain of \$472,390.80, or 19½ per cent. The per centage of expenses to earnings, including State taxes, was 61½ per cent against 64¾ in 1868.

The gross earnings in Illinois were \$7,380,997.90, and the net earnings \$2,732,756.16, being an increase over last year of \$438,009.43.

The gross earnings of the leased lines included in above amount were \$1,442,484.30, working expenses \$741,285.77, State taxes \$14,424.84, and rent \$532,154.47, leaving a net profit of \$154,619.22.

There is an increase of 103½ miles in leased lines in Iowa as compared with the last report. The extension comprises 54 miles of the Cedar Falls and Minnesota Railroad, and 49 miles of the Iowa Falls and Sioux City Railroad, making a total length of 258½ miles now worked in Iowa.

The tonnage hauled during the year was 1,601,972 tons, against 1,439,675 in 1868, and the average distance each ton was hauled was 158 14-100 miles, against 157 miles in 1868. This, owing to the decline in value of cereals, has been transported at a considerably reduced price per ton per mile, as compared with the previous year.

The expenditures on maintenance of way during the year amounted to \$1,314,028.85, which includes the cost of 8,225,610 tons new iron.

The amount charged to permanent expenditures was \$884,776.99, of which \$431,592.70 was for construction, and \$441,713 for equipment.

The bridge across the Mississippi, between Dunleith and Dubuque, opened on the 1st of January, 1869, has been used successfully, and enabled us to transport without interruption a large amount of freight.

The funded debt was reduced \$858,000, and on the 1st of January amounted to \$8,519,500, or deducting the special fund above referred to, leaves an even sum of \$8,000,000.

LAND DEPARTMENT.

The low price of wheat and the almost total failure of corn through the central portion of the State made it difficult for the farmers to pay up in full to the Land Department. The collections amounted to \$2,550,717.70. During the year there were surrendered to the trustees \$1,467,000 of construction bonds. Of the \$3,335,774 construction bonds now in the hands of the trustees, \$2,579,000 are in advance of collections. There were 85,860 acres sold to 1,521 purchasers for \$899,348.71, being an average of \$10.48 per acre, and of 56 acres to each purchaser. Up to the close of the year 1,356,830 51-100 acres of the original grant of land had been deeded to purchasers, and returns thereof made to the State authorities. The amount owing to the company for lands sold was \$4,492,351.60, and the number of acres unsold 457,779.17-100, of which nearly 400,000 acres are located south of the center of the State.

The number of acres of land remaining unsold at the end of the year 1869, was 457,779.17-100 acres.

Railroad Building.

GENERAL ACTIVITY IN RAILWAY INVESTMENTS— THE WHOLE COUNTRY GRIDIRONED WITH NEW LINES.

[From the N. Y. World.]

The recuperating energy and capital of the country are turning into the construction of new railroads, and the extension and perfection of the older lines. Scarcely a corporation now in existence that is not planning or carrying out some project for adding to its business. Among the more prominent of the lines now contemplated or building are, beginning at the Eastward, a line to unite Portland to Halifax, so as to form a part of the short ocean ferry to Europe. Portland is also seeking a direct connection with the lakes and the Mississippi system of roads by way of Ogdensburgh. Massachusetts has her great central line, intended to tap the New York lines by passing through the Hoosac tunnel, and also by the Hartford & Erie, now nearly completed. Connecticut is rapidly completing a new and a shorter line between New York and Boston by the Willimantic link. New York State is building a great line to Oswego—the Midland Railway, which will open up a portion of the State too long neglected. The Southern Central and Long Island Railways are reported to be making fair progress. New Jersey, although her Legislature has narrowly refused the charter for the Air Line road between Philadelphia and New York, has, nevertheless, another route to Philadelphia in prospect by an extension of the New Jersey Southern (formerly Britain and Delaware) Railroad from its present terminus at Port Monmouth to a junction with the Newark and New York road at the former place. Pennsylvania is engaged in building several little local roads mainly to reach her coal and iron deposits. At the same time her great Central Railroad Co., has finally succeeded in obtaining control of Western connections to Erie, Cleveland, Chicago, Cincinnati, Louisville and St. Louis, so as to present at this moment the most colossal and formidable railway consolidation in the country, or perhaps in the world. Maryland and Delaware are pushing a line down the eastern shore of the Chesapeake Bay, so as to establish another through line to the South. Virginia has relinquished her State interests in the Chesapeake & Ohio road, and a strong party of New York capitalists are now pushing forward that line to the Ohio river, which will, within two years, establish a short line between the lower Ohio Valley and the Atlantic ports. Connecting with it is a line from Gordonsville to a point on the Potomac below Alexandria, another from Newport News to Richmond, and a third from Lynchburg to Covington. This activity in Virginia is cheering for the future of that State, and it will be instructive to note which of the candidates for the coming city of Chesapeake—Newport News, Norfolk, West Point, or Acquia Creek—shall first secure a line of ocean steamers for itself. Further South numerous lines are in progress, which is one of the best indications of returning prosperity in that impoverished section. Georgia has its Brunswick & Albany road and under way; Florida its Central Railroad projected; Alabama its lines to Chattanooga on the north, and to New Orleans on the west; Louisiana is pushing her line from Brazos to the Texan frontier. In Northern Texas and Arkansas the Memphis and El Paso, is mak-

ing fair progress. Kentucky has a great central line partially constructed to unite Columbus, at her western extremity with Catlettsburg, at her eastern border, passing through Elizabethtown and Lexington, which, in unison with the Chesapeake & Ohio through West Virginia, will constitute the grand line between the South-west States and the national capital. Along this central belt are several other lines more or less interwoven with the foregoing; for example: Ohio has a line in contemplation cutting obliquely across her territory from Toledo to the iron and coal regions near Pomeroy; another to connect Cincinnati with Portsmouth, called the Cincinnati & Chesapeake. Indiana, which is already checkered with roads, has an important line constructed from her territorial center to the central city of Illinois, known as the Indiana and Illinois Central road, begun before the war. Also, a short line from Terre Haute to St. Louis. In Illinois, both Chicago and St. Louis are pushing lines down to the Ohio River, so as to tap the rich regions of Western Kentucky and Middle Tennessee: the Chicago & Vincennes being the project of the former city, and the St. Louis & St. Joseph westerly, as the protégé of the latter. Both roads pass through coal-fields. Connected with this same belt of new lines reaching from the Potomac to the Mississippi are extensions in Missouri. The St. Louis & St. Joseph and the St. Joseph & Denver form the two essential links in the chain of direct railroad communication to the far West, which, by avoiding the circuitous route from Omaha, will have a great advantage hereafter, as the Union Pacific Co., can not, by its charter, discriminate against any of its Eastern connections, receiving the Government subsidies. Iowa and Minnesota are being gridironed by new roads. In Nebraska and far distant California and Oregon, new roads are building with extraordinary rapidity also.

The inference to be drawn from this general activity is a flattering one. It takes money to build railroads, and surplus capital, instead of venturing against the risks of commercial business, or the still greater dangers of real estate inflation, is in large part turning to the improvement of our great system of railroad communication. These roads are built in part upon mortgage bonds, which are based upon pledges of the property. Though these railroad bonds are placed in the hands of Wall street bankers for sale, dealings in them are not to be confounded with the ordinary stock-gamblings of that locality. Railroad bonds differ in that regard from railroad stocks, although both are liabilities of the railroad corporations; the bonds have to be taken care of, though the stock may be neglected. Even the most recklessly managed roads have generally so scrupulously provided for their bonds that they are accounted as safe and convenient for permanent investments as liens on real estate.

—The Oregon and California Railroad Co., has been organized, with a capital stock of twenty millions of dollars. Ben. Holladay, President; W. L. Halsey, Vice President; A. G. Cunningham, Secretary. The Oregon Central Railroad Co., (eastside,) after transferring all its property and franchises to the above company, was dissolved. The purpose of the new company is to complete the railroad one hundred miles the present year.—*Oregon Sentinel.*

Roads.

As the question of more permanent roads, both railway and highway, is now engaging public attention, we condense a few remarks made on this subject by the eminent English railway engineer, Mr. Bridges Adams. They suggest many points of practical advantage to ourselves.

For forty years endeavors have been made in England to construct "permanent way" in railways, but the chief thing permanent at present, has been the permanent expenditure in repairs.

For more than forty scores of years they have been trying to make permanent street roads, and rate-payers affirm that a main feature is repair also. The Romans set an example of the formation of solid roads, made with huge blocks of stone, which under their comparatively light loads were permanent until abraded into ruts, but for many reasons Roman roads do not suit modern requirements.

In the first place, in cities, with the miles of pipes large and small, laid down at various depths, and constantly requiring access for repairs, which is only to be obtained by digging up the surface, it has been found impossible to maintain a good road, even after one has been made.

The paved surface is to the road what the tire is to the wheel, a contrivance for preventing the destruction of the substructure or the road proper. But just as some wheels are made to depend for their strength on the tire, so is it frequently sought to make the road consist wholly of surface without any really efficient substructure. The road surface is usually arched for two reasons: Firstly, to make it key together, by abutting against the side curbs, and secondly, to run off the water.

But as the arch is not formed of cut stones, in radial lines, but of rough stones, filled irregularly between the joints with mud, or concrete or grouting, the blows from the heavily-laden wheels crack the brittle joint packing, and drive down the stones in succession, and forming shallow pools, in which water lies and soaks through the joints; and the evenness of the surface once destroyed, the whole goes rapidly to ruin.

The average maximum weight per wheel on a road wagon is about one ton. Dropping from a projecting stone on to a sunk one, it acts like a pile driving machine, and the stones being without continuity become separate wedges to be driven in. If the stones were continuous they would not be disturbed. With a large surface, as on a Roman road, they lie quiet, and being thick enough they do not break. But to pave a whole road in that manner would be costly, and, moreover, would not give foothold to the horses. The defect, therefore, in almost all roads, is the want of a continuous under-surface that will not separate or break to pieces. Efforts have been made to obtain this by a bed of concrete, but concrete is a brittle substance, without elasticity, and a certain amount of elasticity is essential to elude the force of the blows.

The road wagon wheel is loaded to one ton, but the driving-wheels of many locomotives—particularly those used on the Metropolitan railways of London, are loaded up to eight tons each. The ground area of a mile of railway is in round numbers 48,000 square feet, but the real bearing area of the timber sleepers is only about 13,200, supposing them all packed solid. If, therefore, we could make a timber substructure of a mile of roadway distributed over the whole area instead of at intervals, we should obtain a road four times

the strength of any railway, and only subject to decay chemically.

But chemical decay in pine timber can be arrested indefinitely by creosoting, etc., and burying in the ground, especially moist ground, just as piles last under bridge piers. The road should be leveled and covered longitudinally with creosoted pine boards, of a sectional measurement of 9 by 3 inches, laid side by side, and made to break joint. A second layer should cross them transversely, and they would need no fastening together. Upon this surface the paving should be laid, the stones with flat bottoms and asphalted joints, all bearing on the timber. We thus obtain a continuous road, perfectly flat and level, and impervious to water, with a slightly elastic yield, that would deaden sound, facilitate draught, while at the same time it would be free from all dust and mud from below, and could only be dirtied by matters carelessly deposited upon it.

True, it would be costly. It would be setting a cubic foot of creosote timber against three feet of concrete. But the concrete would be nearly nine times as heavy as the timber, which is a consideration.—*The Technologist*.

RAILROAD FREIGHT AGENTS' CONVENTION.—The annual meeting of the General Railway Freight Agents' Association was held at Cleveland, April 13. About thirty were present, representing most of the principal lines in the country.

The following officers were elected for the ensuing year: President, C. W. Smith, Pittsburgh, Cincinnati and St. Louis Railway; Vice-President, E. R. Wadsworth, Chicago, Burlington and Quincy Railway; Secretary, H. W. Hubbard, Terre Haute, and Indianapolis, and St. Louis, Vandalia and Terre Haute Railways; Executive Committee, Thomas Hoops, Michigan Central Railway; Lucian Hills, Cleveland, Columbus and Indianapolis Railways; L. Devenney, Cincinnati, Hamilton and Dayton Railway; M. H. Smith, Louisville and Nashville Railway; J. C. Buxton, Cleveland, Sandusky and Cincinnati Railway.


The following rates on live stocks, per one hundred pounds, were fixed:

To Buffalo—From Chicago, 40 cents; from Indianapolis, 87½ cents; from Cincinnati, 35 cents; from Louisville, 40 cents.

To Pittsburg—From Chicago, 40 cents; from Indianapolis, 32½ cents; from Cincinnati, 30 cents; from Louisville, 37½ cents.

General classification of rates was referred to the committee who were instructed to complete their labors, and then ask the President to call a joint meeting of the Association and trunk lines, at New York.

It was resolved to hold the next regular meeting at Chicago, on the second Wednesday of October.


 The Commissioner of the General Land Office is in receipt of returns from the following land offices, showing the disposal during the last month of 64,172 acres of the public lands, to wit: Marysville, Colorado, 38,796; Sioux City, Iowa, 16,523 acres; and Vermillion, Dakota Territory, 8,853 acres. The Commissioner has also submitted to the Secretary of the Interior, for his approval, a list of school indemnity selections made by the State of California in the San Francisco land district, embracing tracts of an aggregate area of 16,535 acres.


THE SUEZ CANAL.—The Pittsburgh *Commercial*, of the 5th inst., speaking of the Suez canal as a success of commercial interest, says that the steamer Brazilian had returned from Bombay through the Suez canal with one of the largest cargoes ever shipped from that port. On the 26th of January the people of Havre concerned in trade were exulting in the fact that the English steamer Port Said had just arrived in their harbor from the Red Sea. This seemed to them the beginning of a new future, the inauguration of a maritime revolution; for the Port Said was the pioneer of a line of steam vessels destined to connect Liverpool, Havre, Port Said and Bombay through the Suez canal. This line was organized by the Merchant Trading Company of "Liverpool, Havre, and Bombay Steam Navigation Company." It consists of the Brazilian, 2,815 tons; Queen of the South, 2,097 tons; Ismailia, 899 tons; Bolivian, 2,815 tons. At the date specified above, the Brazilian was just on the point of starting for Bombay, from which port she was expected to bring a cargo of 10,000 bales of cotton. With all this Havre people were delighted, as hitherto they had received Indian cotton only by sailing vessels which had spent months in rounding the Cape, or by the overland route, in which much delay had been caused, and much expense incurred in the transit through Egypt. The arrival of the Brazilian, with her heavy cargo, after passing through the canal, is certainly adapted to remove the distrust of some, and to raise the expectations of others, as to the commercial revolution initiated by the completion of Robert Stephenson's "stinking ditch."

POPULATING RAILWAYS.—The caption of this article may not be altogether grammatical, but the very fruitful suggestion of the idea belongs to the Northern Pacific Company, who have a land grant equal to about twenty miles wide all the way across the continent, from the head of Lake Superior to the western coast of Oregon. And to stimulate emigration to their lands, while securing laborers to build their railway, they propose sending Senator Schurz, ex-Secretary McCulloch and ex-Governor Marshall to Europe, with the tempting offer of employment to laboring men who may come and earn good wages; and, when the line is finished, have each a farm of 40, 80 or 160 acres, with a neat frame dwelling house ready erected thereon, and a lot of reasonable size, fenced in, all at the expense of the Company. The terms of payment are so long and on so low interest, that they can not prove a burden to the poorest. It is expected that the surplus wages received for constructing the line will stock the farm and provide the tools, so that every person employed in construction may, as soon as the work is finished, go to raising crops, which the road will bring to market. The Company will manufacture the houses, by the thousand, exactly alike, and thus build up an entirely new world to astonish the rest of mankind.

IOWA.—The total population of Iowa in 1869 was 1,040,819. Number of dwelling-houses in 1865, 114,351; in 1869, 183,921. Number of families, 187,407. Number of acres of land in cultivation, 6,109,743. Bushels of Spring wheat harvested, 16,823,520; Winter wheat, 1,140,035; total of wheat 17,963,555. Number of bushels of corn, 76,507,575. Fruit trees in bearing, 1,339,943; number not in bearing, 4,100,207. Number of hogs of all ages, 2,409,679; cattle, 2,108,669. Number of milch cows 367,602. Number of sheep 2,370,-

106. Pounds of woolshorn, 4,478,934. Number of horses, 482,786. Number of dogs, 147,623. Value of manufactures, \$16,061,210. Number of acres of land assessed, 30,109,771. Assessed value of lands and town lots, \$222,561,061; of personal property, \$71,971,191. Total assessed valuation, \$294,532,252. Number of miles of railroad, 1,900. The population of Iowa in 1847 was 116,651; increase in 23 years, 924,168. Wonderful has been the progress of this young State, and yet it has just commenced its onward progress.

 The fruit trade between the countries bordering on the Mediterranean and the United States is at present carried on by twelve steamers, each of 1,250 tons burden, running from Gibraltar to New York in twenty days. There are two lines of steamers engaged in this trade—the Anchor, of Glasgow, and the London. The steamers of the Anchor line sail from New York with flour and grain for Glasgow, there take in another cargo of English manufactured goods and proceed to the Mediterranean, stopping at Lisbon, Gibraltar, Genoa, Leghorn, Naples, Messina and Palermo. At these ports the return cargo of fruit is collected, and the steamers then return to New York. The vessels of the Condon line pursue nearly the same route, with the exception of touching at the English Channel ports, instead of Glasgow. The principal coaling station for the return voyage is Gibraltar. The fruit season continues from November to the close of May, and 36,000 boxes of oranges and lemons are imported weekly. These steamers are also commencing to bring emigrants, and also Americans who have been traveling in Southern Europe, and avail themselves of this route to return home, without again passing over the countries they have already visited.

 Commissioner Deiano has transmitted to the Senate a statement showing a gradual and steady increase in the receipts of internal revenue for the several years ending with each month from June, 1869, to Jan., 1870, inclusive. From July 1, 1868, to June 30, 1869, the receipts were \$159,124,127.29. From August 1, 1868, to July 31, 1869, the receipts were \$162,898,778.15, and for the years ending in the succeeding months the amounts are as follows: August, \$164,176,806.79; September, \$167,216,173.51; October, \$169,509,024.73; November, \$172,933,301.95; December, \$174,399,969.32; January, \$174,839,925.43. This showing is a gratifying one, and well calculated to strengthen the financial credit of the country. The good work will still go on if meddling tinkers can be kept from interference with it.

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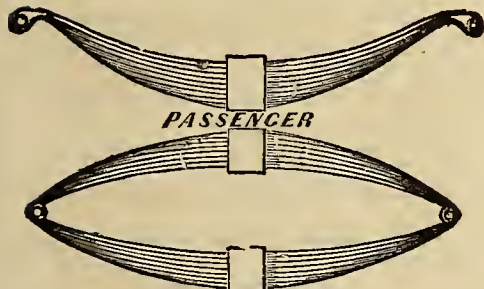
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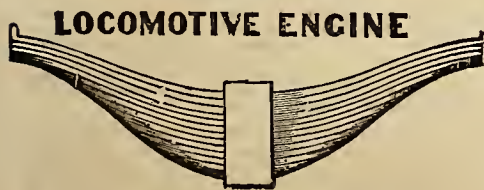
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Profiles and specifications can be found at the office of the company) 54 William street, New York, on and after February 1; at Richmond, Va., and at Charleston, W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia.

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The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this line, will find in its ever changing landscapes subjects of continual admiration and interest.

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And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet

House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUC, Gen'l Pass. Ag't

WM. R. BARK, General Southern Agent,

Best Route to St. Louis and Chicago

INDIANAPOLIS,
CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,
CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	7.20 am	7.35 am
St. Louis and Springfield Express....	10.20 am	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.20 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE
Eastern Express (Erie Railway)....	7:40 A. M.	6:30 P. M.
do do do do do do do do do do	9:45 P. M.	7:40 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	6:30 P. M.	7:40 A. M.
Lima, Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	5:30 P. M.	5:40 P. M.
do do do do do do do do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	5:40 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do do do do do do do do	5:40 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do do do do do do do do	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

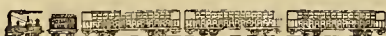
For all information and through tickets, please apply at the office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & Co.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

[Pittsburgh, Pa.]

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.09 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Sup't. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckhannock, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Laureate, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Philadelphia for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:43, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, APRIL 28, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

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WRIGHTSON & CO., Prop'r's.

The Ohio River.

ITS TRIBUTARIES, COMMERCE AND NAVIGATION.

It is a very curious thing, that while there have been systems of canals, and great numbers of costly railroads made, that there has been no attempt made, by a general plan, to make and keep the tributaries of the great rivers of the West navigable. We have not made the estimate, but it is entirely within bounds to say, that one-fourth the cost of the railroads within the Valley of the Ohio, would have made every tributary of the Ohio permanently navigable. Now, has any one considered what that would be, and its effects?

Let us tell the reader, that the Ohio and its tributaries make seven thousand three hundred miles of coast line. If the whole of this coast line was navigable by small steamboats, it would be equal to thousands of miles of railroads.

The late Mr. ELLET, civil engineer, proposed a plan to make the navigation of the Ohio uniform and permanent, by pools and dams at the head of the streams. This plan was entirely practicable, and would not have cost great sums. He is the only man who has, so far as we know, proposed any general plan. At some time the improvement of the western tributaries will be made, and in view of that, we will review some of the facts connected with it. We have the *Pittsburg Chronicle*, with an excellent article on the commerce of Ohio. From that we shall make a digest of some facts of deep interest:

The Tennessee is the most southern tributary of the Ohio, and the Big Beaver, in

Ohio, the most northern—the Alleghany being itself the real Ohio. The sources of the Alleghany are in about the 42° of north latitude, while the south head of the Tennessee is 33°. Thus we have a zone no less than nine degrees in breadth, included in the Valley of the Ohio. The area included in this valley is 220,000 square miles. As a very large part of it is alluvial, it has been more rapidly settled and made productive, than any other section of the country. Nearly the whole of five states, (Ohio, Indiana, Illinois, Kentucky and Tennessee) and a very large part of three others (Pennsylvania, Virginia and Alabama) are included in it. In a report made by the United States Engineer of the Ohio River Improvement, it is said, that no less than three hundred and seventy-two cities, towns and landings—not including any farm landings—are on the Ohio and its tributaries. The entire coast line, as we have said, is about 7,500 miles; but the actual steamboat navigation is nearly 4,000 miles. The principal lines of this navigation may be thus described:

1. That of the Ohio itself, making 937 miles of direct navigation, whose towns we need not state.

2. That of the Cumberland, which has 700 miles navigable, and in its course furnishes commerce, derived from almost all of the products of the temperate zone. Among the towns and places on this river are Eddyville, Canton, Dover, Clarksville, Nashville, Ashport, Carthage and Burksville.

3. The Tennessee river, which furnishes 700 miles of steamboat navigation. Among the principal towns upon it are Paris, Eastport, Tusculumbia, Bridgeport, Chattanooga and Knoxville. The Valley of the Tennessee, like that of the Cumberland, furnishes a great variety of commerce.

4. The Valley of the Wabash is an immensely rich agricultural region, and for 400 miles is lined with flourishing towns and villages. Evansville, which really belongs to the Valley of the Wabash is one, Mt. Carmel, Vincennes, Terre Haute, Logansport and Ft. Wayne.

5. The Valley of the Muskingum, 200 miles in length, with Marietta, McConnellsville, Zanesville, Coshocton and many others.

6. The Valley of the Licking, which for 250 miles may be made as navigable as a canal, with locks and dams.

In addition to these, we need scarcely mention the Valleys of the Scioto, and the Miamis, which, though not navigable, are filled with railroads and canals, which now, indeed, pervade the whole Valley of the Ohio. If we now consider this immense area, sufficient to make half a dozen European kingdoms, and its seven thousand miles of river coast, we shall begin to perceive what an immense commerce has already sprung up, and must hereafter be enlarged far beyond even any present

imagination of its magnitude and importance.

By a statement made by the Engineer of the Ohio River Improvement, it is claimed that the value of the commerce of the Ohio river and its tributaries amounts to seven hundred millions of dollars. This seems an enormous amount, but it is made out by actual inquiry into the amount of commerce in all towns and landings where the value is above \$100,000. The following is the estimate thus made of some of the principal cities and towns:

Pittsburg, Pa.....	\$150,000,000
Cincinnati, Ohio.....	150,000,000
Louisville, Ky.....	115,000,000
Paducah, Ky.....	40,000,000
Smithland, Ky.....	30,000,000
Wheeling, Va.....	30,000,000
Cairo, Ill.....	20,000,000
New Albany, Ind.....	15,000,000
Evansville, Ind.....	12,500,000
Portsmouth, Ohio.....	12,000,000
Steubenville, Ohio.....	8,000,000
Pomeroy, Ohio.....	8,000,000
Ironton, Ohio.....	5,000,000
Maysville, Ky.....	8,500,000
Ripley, Ohio.....	5,000,000
Madison, Ind.....	12,000,000
Henderson, Ky.....	3,000,000

Here are seventeen towns, whose aggregate commerce on the river (for we do not include the inland traffic) exceeds six hundred millions of dollars. Besides there are more than 80 other places exporting and importing to an amount exceeding \$100,000. Such is the immense commerce which already swells up in the Valley of the Ohio.

Now, let us look at three points, viz: what the population of this valley is—what its influence must be, and what ought to be done?

1. The eight states and parts of states, which lie in the Valley of the Ohio, contain ten millions of people, one-fourth the whole population of the United States; and more than New England, New York and New Jersey together contain. It is time this great and rich portion of the country received the attention of the Government in those things upon which only Government can act.

2. What must be the commercial influence of this great, and in regard to internal commerce, most important section of the country?

Col. EADS, civil engineer, thus speaks of the commerce of the Mississippi and Ohio:

"Through its copious channels, for all time to come, are destined to circulate, the sustenance and surpluse of its people. Life-giving Commerce, who brings in her ever welcome train peace and good will to men, through its many convenient passages will distribute plenty and prosperity throughout the realm. The wealth and luxuries of the generous South will thread its devious currents to their very sources, and will be scattered within the sound of their tinkling rills and sparkling cascades, whilst every wave that is borne towards the Gulf will be burdened with the reciprocated offerings of the colder latitudes. From its streams will be sent forth to the less favored nations of the earth the bountiful abundance of a land far more

blessed than that which the prophet of old was permitted to gaze upon, but forbidden to enjoy.

"The influence and power of the people of this valley will be limited only by their virtue and intelligence. They can forever rivet to this Union, with bonds firmer than brass or steel, the States that lie beyond the mountains, outposts of the nation, and which, fringing the Commonwealth, constitute buttress and bastion, stockade or portcullis, to give safety and repose to the mighty State within their borders. Self-protection, community of interest, ties of consanguinity and national pride, will hold those States to the great central empire as immutably as the planets are held in their just positions by the attraction of the vast central orb, whose blessed influence gives them stability, and from whose exhaustless warmth they inherit vitality and nourishment."

3. And now, what ought to be done? Everything should be done which will remove the obstructions to, and make practicable the vast navigation of the Ohio and Mississippi. It would have cost very little to have carried out Mr. ELLET's idea of pools and locks, to make permanent the navigation of the Ohio. The same might have been done on the Cumberland, the Tennessee and the Licking. The Louisville Canal has been the opprobrium of the country, but is likely to be made navigable soon for good boats.

The *Pittsburg Chronicle* well says:

"But few of our readers may have an idea of the great value this river has been, and is still to our national prosperity, and plain facts like the above are worth bushels of speeches and books. If the Western people ever hope to be benefited by wise and appropriate legislation to anything like the extent the Eastern and Northern people have been by the improvement of their lakes and harbors, they should ask the same national aid for the improvement of the navigation of Western rivers. Whatever value the navy, light-houses, breakwaters and harbor improvements may be to our foreign commerce, river improvements on the same scale of cost, for the advantage of a much greater inland navigation, would only seem right and just. Let us develop all our resources."

There is great activity in American Railroad Securities in the London market. Bonds of the Indianapolis, Bloomington and Western Railway, the Des Moines Valley Railway and of the State of Alabama for railway purposes in that State are now offered in that city, with flattering prospects of being rapidly taken at fair prices.

The people along the contemplated railroad line from Hillsboro to Picketon, on the Ohio River, have advertised for a rousing meeting at Hillsboro, on the 5th of May next.

They are all alive to the importance of this work, and from the signs something is to be done.

Several prominent citizens are advertised to address the meeting.

The C. H. & D. R. R. Co., and the 3d of May Election.

The railroad event of the past week, in this city, has been the controversy between the present management of the Cincinnati, Hamilton & Dayton Railroad, and certain of the stock interest of that enterprise that are dissatisfied with the old *regime*.

The combatants are powerful, active, and each full of hope, and as the prize is one of the largest in this section of the country, the effort to seize it is correspondingly energetic.

The daily press has taken up the cudgel, and is arrayed not exactly according to its old feuds. The *Enquirer* comes out bold and strong, indeed personal, in defense of Mr. L'HOMMEDIEU, and warns the stockholders against the direction of anything, much less a productive road like the C. H. & D., by grasping rings. The Republican press is, of course, on the other side; the *Commercial* directly; the *Gazette*, *Times*, and *Chronicle* by indifference.

Up to this writing the conflict goes on, and we suppose will, until the 3d of next month, when the election of directors of this road, for the ensuing year, will conclude the matter, and as this period is so near at hand, we venture no opinion upon the result.

Our interest is with that of the railroad prosperity of the country. The C. H. & D. road is a project possessing such advantages, in locality, connections and control of a large and growing traffic, that it ought to stand among the very best of the kind in the country. The reflex value of its productivity upon the capital invested in it, is very great upon roads now terminating in this city, and greater still upon such enterprises as are projected to be built from this point. Railroads are regarded as a system, and affect each other more than a superficial view may indicate.

As an objection to the construction of new roads from Cincinnati, we have heard from experienced railroad men, "that the railroads now centering here did not pay, and that the interest of the city was to bring them up to this standard, before any attempt was made to construct others."

At the time this was said, about two years since, we believe there was not a railroad then running out of Cincinnati that paid a cash dividend; the remark, therefore, seemed warranted, and we have no doubt the same opinion was entertained by other persons, and that our enterprising citizens were crippled in their efforts to advance new schemes of this sort, by reason of these views.

There is, consequently, a great public interest in the prosperity of our railroads outside of that direct one that belongs to their stockholders and creditors.

It is in behalf of this public interest we speak, and aver, that if the C. H. & D. road

has been so managed, that it has not paid as well as it was capable of doing, and at the same time have afforded the public all the conveniences it has, and with a due allowance for the mistakes that are incident to the best capacity in its direction, the stockholders are justified in their complaints, and the public have a right to encourage them in demanding a change in its management.

This position, of course, authorizes the converse one.

Now, what the facts are we will not undertake to determine. We are aware that for some time there has been complainings against Mr. L'HOMMEDIEU and associates as managers of this road. But these we regarded rather as the fault-finding always heard against those in authority, and such as are generally without foundation. But now, that it has assumed a magnitude that calls from Mr. L'HOMMEDIEU himself, long defenses in the daily press, and large public meetings addressed by such responsible gentlemen as Gen. BATES, WM. HOOPER and Hon. HENRY STANBURY, it rises to a dignity that demands respect; and we should think Mr. L'HOMMEDIEU would court the severest criticism of his skill and integrity as a railroad manager, and cheerfully submit to the verdict, in the full consciousness that the stockholders and the public would scorn to do him injustice.

Is not this the surest way of defeating the machinations of a ring? Would not such a proffer inspire confidence in the stockholders—keep up the price of the stock of his road, and thus prevent its changing hands until the result of an investigation was known? And if favorable to him as he claims, would he not put all his foes *hors de combat*, and reign master of the situation? The stockholders of a corporation have a right to complain, if they think they are aggrieved by the neglect or inefficiency of their officers, and the officers have quite as good a right to show that the stockholders are mistaken, and ought to rejoice because they are so intelligently and faithfully served.

The official report of the Erie Railway to the New York State Engineer shows that road to be 823½ miles long, this includes branches and roads operated by the Company in New York. The total cost of construction is put at \$65,131,959; the stock issued is reported at \$78,536,910, and the bonded debt at \$23,398,800. The income from earnings are \$16,721,500, while the cost of operating has been \$13,718,085, or a little over 80 per cent. of the gross earnings; the interest paid on their bonded debt was \$1,703,773, leaving a balance in the treasury for other purposes of \$1,299,642.

From latest advices we learn that money is very abundant and cheap in England, and that the crop prospects are good throughout the Kingdom.

Rockport & Northern Central Railroad.

The notices of the city press that a joint resolution of the Board of Trade and Chamber of Commerce had invited the friends of the above named railroad to meet at the rooms of the Board of Trade on the 27th inst., for the purpose of considering measures to advance the interests of this scheme, called out a fair number of our responsible citizens who were met by upwards of a hundred of the solid men living along the line of this road.

The meeting was organized by calling Hon. Josiah Kirby to the chair, and the appointing of the following gentlemen as Vice Presidents:

R. M. Bishop, Joseph Kinsey, Cincinnati; J. N. Breen, Martin county, Ind.; M. Freedman, Dubois county, Ind.; Hon. D. T. Laird, Spencer county, Ind.; J. C. Rudd, Daviess county, Ky.; Joseph McCudd, Davis county, Ind., and Capt. H. H. Tatem as Secretary.

Mr. Kirby made a few well chosen remarks, in which he spoke of the interest Cincinnati had in all railroad improvements—the importance of this one to her trade, and such other facts as are pertinent to the project.

A letter was read from James Weir, President of the Owensboro & Russellville R. R., in which it was claimed that this work is of great value as a connecting link with the system of South-western roads, and would give Cincinnati her long desired avenue to the South.

Interesting addresses were delivered by Mr. L. G. DeBreuler, President of the Rockport road; Dr. Sabin, its Secretary; Judge Laird, of Rockport, and on behalf of our citizens by R. M. Bishop, L. H. Sargent, Miles Greenwood and Wm. Glenn.

Mr. Gano offered the following resolutions, which were adopted:

WHEREAS, It is desirable that the city of Cincinnati shall extend her lines of transportation South, and

WHEREAS, The Rockport and Northern Central Railway presents us a fair and tangible proposition to secure a valuable Southern connection by a comparatively small outlay.

Resolved, That the President and Vice Presidents of this meeting appoint a committee of nine to canvass among the business men of Cincinnati generally to secure stock.

The following committee was appointed to solicit from our citizens subscriptions to the capital stock of this company:

M. Kleiner, L. H. Sargent, Robert Mitchell, G. W. McAlpin, W. H. Harrison, Jacob Elsas, B. George Stahl, N. McNeale, John Slevin, G. F. Bouve, Jas. Morrison, Richard Mallay, Josiah Kirby.

The object of this meeting was to induce the people of Cincinnati to subscribe to the stock of this road, the sum of three hundred thousand dollars, which, with the local subscription now amounting to about two hun-

dred and fifty thousand dollars, is said to be sufficient to grade and prepare this roadway for the iron and equipment.

The local subscription is proposed to be a donation, and therefore, the road would be under the control of the stockholders who may take this \$300,000 wanted from our citizens, and, consequently, could be operated in their especial interests.

The meeting was a pleasant one, and we believe satisfactory to all parties.

The remarkable feature of this conference is, that our people are solicited to aid the construction of, and to own and control sixty miles of road, the nearest point of which is about one hundred and fifty miles from our city, and that connects with, and is expected to fill a hiatus in a system of roads that lead to business centers, both north and south, that are rivals of Cincinnati.

Let us look at this a moment. Mr. Weir, the President of the Owensboro & Russellville road, in his letter to this meeting, says, that his road will *certainly* be built to the city of Nashville. At this point, connections are made with roads that lead pretty directly to all the South-western interior, part of the Southern Atlantic, and all the Gulf ports.

Thus the Southern half of this scheme is concluded.

Now, with the road made from Rockport to Logosotee, the point of intersection with the Ohio & Mississippi road, a capital St. Louis line is had; there being but about 30 miles difference between reaching that point or Cincinnati. Thence, with the line to Gosport, direct communication is secured with Indianapolis and Chicago. Or, if the route should be chosen from Logosotee to Rockville, thence to Attica on the Wabash river, and the southern terminus of a contemplated and practical road from Chicago quite as good a route is had to these points.

Thus is matured the northern complement of this plan, except the bridge across the Ohio river, which was not mentioned by the gentlemen at this meeting, and is certainly not included in this \$550,000 estimate for grading, etc., yet without which the much talked of Southern trade for Cincinnati, falls to the ground.

Let any of our readers place their map before them, and strike a line from Chicago to Attica—then another from Attica to Logosotee, and another from there to Rockport, and they will see at a glance that this is the best north and south line between the Lakes and the Gulf. It is Chicago's Southern road, and will be to that city substantially what we are claiming for our Southern road to Chattanooga.

To show that we are not alone in the views we have expressed, we quote from various journals laboring for the success of this scheme, and published at a time, we suppose, when Cincinnati aid was not contemplated.

The Indianapolis *Journal*, of Sept., 1869, says:

"Articles of association have been filed in the office of the Secretary of State, for a railroad from Rockport, Indiana, through the counties north of the Ohio river, to a point near Bloomfield, Green county, and thence through Clay county, touching Middlebury, Bowling Green, Brazil and Knights-ville, thence to Rockville, through Parke and Fountain counties, crossing the Wabash Valley road at Attica, and through Warren, to Oxford, Benton county, and to Lake Michigan and Chicago."

A telegram to the *Commercial* from the Associated Press, dated Nashville, March 9, 1870, says:

"The subject of direct communication by rail between this city and Chicago, via Russellville and Owensboro, Kentucky, is exciting much interest."

And a Nashville paper, dated Feb. 6, 1870, referring to this subject, says:

"We have before us a letter from the President of the road, which has been kindly furnished us by one of the delegation, from which we glean the following interesting facts: Those interested in the success of the road are anxious to make a Southern connection at Springfield—the nearest point of their Southern terminus, with the Tennessee Southern Railroad system. They are also sanguine of making a Northern connection to Chicago, and necessarily with all the Northern roads, and this company is very desirous of making through connections South to Decatur and Chattanooga."

We deem this quite sufficient upon this point.

The argument that this sixty mile link will be owned by Cincinnati, and therefore controlled in her interest, does not meet the case. The question is, do Cincinnati men desire to invest in a Chicago Southern road? If they do as an investment, we have nothing to say; but if with the purpose of securing southern trade for this city, we shall ask them to look again at the situation, and see whether the natural and therefore better means of accomplishing this result is not overlooked.

There are other reasons that present themselves to us, why this sixty mile link, though controlled by Cincinnati, would not bring us the traffic of the South-west, but we reserve them for another time.

Now, we have no doubt that this line of road is all that is claimed for it, and that the country abounds in industrial resources, and that the people will give a *material* welcome to any person or persons who will help them out; and as we should like to secure this valuable trade for our city, let us suggest to the managers of that work the only plan by which the business of that line would be in part, and probably the largest, secured to Cincinnati:

1st. Secure a survey and estimate by a competent engineer, of the work from Rockport to Logosotee, or the best natural point on the O. & M. road, that the cost may be known and not guessed at.

2nd. Obtain the right of way, depot and station grounds, wood and cattle yards, etc.

3rd. Secure all the local contributions and stock subscriptions that can be had with liberal conditions; and, in addition, whatever aid can be had from Cincinnati, and then give it all to the Ohio & Mississippi Railroad Company upon condition that they construct the road as you have defined it.

If the country is as rich, and the people as keen for this work as reported, the amount thus obtained will be quite handsome in amount, and as the public proposition is to *donate*, it may as well be donated to a company as to individuals, provided the same results are had, as in this case they would be, and it could not and would not be refused.

Besides, by this operation one important obstacle would be removed, that is now more formidable than President Le Breuler or Secretary Sahin are aware of or willing to admit, that of securing profitable terms of transit upon the O. & M. road. In addition to this, we think such an arrangement would inspire confidence in our citizens, that those who may now subscribe to the stock of the Company will aid more liberally, and many who now believe as we do, would become ardent supporters of the scheme, and its success be secured; and that too at as early a period as its most sanguine friends could expect.

Until this, or something of the kind is done, we can not recommend our people to invest in it, if their object is to *secure* trade to this city. The amount asked, \$300,000, is not so large as to be alarming, and ought to be easily and quickly obtained from our business men; but in view of the objections we have stated, and the well known fact that there are projects right at home of so much more importance to Cincinnati than this one, awaiting the propitious moment for organization, and that will require the largest possible aid from our people, we believe the present attempt to secure this subscription is a scattering of our energies and a diversion from the main object—the construction of a direct Southern Railroad. That the Rockport and Logosotee scheme at best would be but a makeshift, is fully evinced by the fact of the break of gauge and bulk at Logosotee, the transfer to a nine mile ferry at Rockport and the change of gauge and break of bulk at Owensboro.

All this is part of the game played by the parties in the interest of the Owensboro' and Russellville road in the defeat of the Southern Railroad measure in the Kentucky Legislature. The *avowed* object of this opposition was to force Cincinnati aid to this very scheme—President Weir in his letter to the Board of Trade, *admits it*—Mr. Bishop in his remarks announced that he was *aware of it*; but with Christian forbearance, cast himself upon the rule of the good book that

requires us to return good for evil. This "heaping coals of fire on the heads of your enemies," is all very pretty as a theory, but it don't apply very well to railroad affairs, and is especially bad when one has conscientious scruples about "scorching the hair."

Gould and Fisk.

The *Enquirer* in its attacks upon what it calls the "Third Street Ring" says that this ring is attempting to do in Cincinnati what GOULD and FISK did in New York, viz: to seize upon the principal productive enterprises of this city, and convert them to its individual advantage.

Certain Western papers, the *Enquirer* among them, have a habit of bringing GOULD and FISK to the front upon all occasions when they treat of the iniquity of rings, and the corrupt management of great corporations. They seem to be the "raw head and bloody bones" with which to frighten and warn the public when an association of enterprising men undertake to carry out any great scheme.

The most of this sort of thing is a rehash of the growlings of such of the New York press as are not favorites with Messrs. GOULD and FISK, or as are subsidized by interests conflicting with theirs. But the *Enquirer* claims a respectability beyond this, and knows or ought to know, that these flings and slurs are just such as are made against every one who by energy, tact, or good fortune succeeds in reaching and maintaining the control of a money making corporation, and it ought not, therefore, to cater to so base a spirit.

It is said, and generally believed hereabouts, that the *Enquirer* has been or is the organ of one of the oldest and most unscrupulous rings in the West. If this is true, we may account for the bringing forward of these ogres, GOULD and FISK, upon the same principle that the guilty rascal cried stop thief. This is an old dodge, but in this case too transparent to be effectual.

GOULD and FISK profess to be no better, and are no worse than thousands of other men in New York, engaged in the same line of business. For the past few years, however, their boldness has electrified every one, their skill and energy baffled opposition, and their success kept them to the surface, and made them shining marks for the shafts of envy and malice.

Yet, notwithstanding all this, they have done a great deal of good to the city of New York—the Erie Railroad—the traveling public, and the country through which this magnificent thoroughfare passes.

It is hardly time to pass judgment upon their works. Their plans are not matured, nor their labors consummated; when they are, it is possible, that in the scale of public opinion, the *good* they have accomplished may make the *bad* "kick the beam."

Necessity for Regulating Land Grants to Railroads.

The following article is well worthy the consideration of Congress, now that measures are before it involving the disposition of a large portion of the public domain.

Experience proves that railroads increase the value of the lands through which they pass to a distance of about fifteen miles upon each side of the line, to the full cost of such improvements. This, we think, was demonstrated in the leading article of our last week's issue. This being true, these lands are so desirable as to prompt a sharp competition in procuring them, and the railroad company receiving a share of this thirty mile strip of territory find first, credit by which means are to be had to construct their works; second, assets with which to liquidate part of its indebtedness, and thirdly and finally a populous and developed country that supplies it with perpetual support; whilst the Government's remaining share, before not at all available, is readily marketable at such an increased price as will place as much money into its treasury, as from the sale of the whole at the usual government maximum rate.

The Government system in working out these results has not differed materially from that first adopted, and aside from the suggestions made in the article below "to throw safeguards about the public domain, and see that the purposes of Government and the security of purchasers are obtained," we can suggest little or no improvement.

The curse of Government gratuities thus far developed, is the opportunity for frauds that we regret to say is usually foreseen, and managed under a thorough organization and system, disreputable to us as a people, and that so shifts responsibilities as to baffle, if not defy individual detection and punishment.

Any measures Congress can adopt to prevent a recurrence of these evils, warrant their consideration, and if obtained, will remove the principal objection to the distribution of the public lands to aid such works of internal improvement:

"It is very desirable that some general plan should be adopted by Congress in reference to grants of lands for railroads and other works of internal improvement. At present there is no system, and only very little discrimination exercised. Parties go to Congress with schemes involving large grants of land, and they are pushed through or rejected not so much on their merits, but according to the relative strength or weakness of the lobby that may be behind them. The immense number of applications for land grants for all kinds of purposes, now pending before Congress, increases the necessity for discrimination. The public domain is still very large, but it will all be exhausted within ten years if restrictions are not placed upon the lavishness of our legislators. In a certain sense it would be advantageous if it were all sold or given away within a less period. But it should only pass into the

hands of actual settlers, and in quantities not larger than there is a reasonable prospect of their cultivating. That it should pass into the hands of a few wealthy speculators or great corporations, to lay the foundations of a powerful landed aristocracy in the future, is an evil that can not be too earnestly guarded against.

"The influence of railroads in opening up our sparsely settled States and territories, to immigration is so great, that it is doubtful whether our public lands could be devoted to a better purpose than the construction of new lines. But care should be taken that they shall actually accomplish the purpose intended. It is here that the great danger of land or any other kind of subsidies come in. There are so many temptations too, and opportunities for fraud, that it is almost impossible to guard against jobbery and corruption. Nevertheless something may be accomplished. Care can be taken that the land shall not fall into the hands of speculators and monopolies. Rightly managed, these railroad land grants may be made the means for more thoroughly and effectually dividing the public domain among actual settlers.

"This object can be accomplished by providing that all land donated as bounties or subsidies to corporations or individuals, shall be sold at a maximum price not greater than is charged for other public lands in any other location. The present selling rate of \$1 25 per acre would be a good maximum. Settlers should have an absolute right of pre-emption to the land in lots of 40, 80, 120 and not more than 160 acres. If the land is sold on credit, not more than 7 per cent. interest should be charged, with provisions protecting the holders from foreclosure for stated periods, or so long as the land may be actually cultivated. In cases of foreclosure, sales should be conditional upon actual cultivation by new settlers or persons who own no other land. In all cases, the rights in fee should be reserved to the Government in trust for the people. The corporations should never be permitted to hold or control land for a longer period than ten, or at the most, fifteen years. Lands unsold or unpaid for after that period, should relapse to the Government. Even in Europe, no franchises are granted in perpetuity. They all revert to the government at stated intervals. Unless some such principle is adopted in this country we shall have empires within an empire, at no very distant period, and the people will be at the mercy of vast monopolists, against which the only redress will be the right of revolution.

"In lieu of granting land as subsidies to railroads, it is suggested that the better way would be for the Government to guarantee the shareholders a minimum of interest, for a limited period of say ten years, on the capital actually invested. The probable outlay could be capitalized, and a sufficient quantity of land set apart to cover it. In India a plan of this kind is in operation. The Government guarantees the interest, and a sufficient amount of capital is always forthcoming when it is thus assured against loss. If the Company earns a sufficient amount of money to pay dividends without the aid of the Government, then the public money is not expended. Due restrictions are placed upon outlay, so as to prevent the companies from sinking in improvements the earnings that should be paid in dividends. A government (civil or military) official attends every meeting of the company, and has a veto on expenditures, under certain conditions. A similar

system is in operation in Germany with the most satisfactory results.

"However desirable a plan of this kind might be, it is very doubtful whether it could be made to work well under our system of government. Our institutions are not yet sufficiently centralized, and we trust never will be, to render this method effective among us. The better and more practical course would be to guarantee, as we have stated, that all lands appropriated to railroad purposes, or other works of internal improvement shall be sold to actual settlers, at a fixed price, and reserving the title in fee, which should only be guaranteed to the persons who shall have cultivated the lands for a given period of say five years.

"This whole subject is one that commands the careful consideration of Congress. Too many safeguards can not be thrown around the public domain. The immense evils resulting from land monopoly in Europe should render us exceedingly cautious to avoid introducing a similar condition of affairs on our continent. The land, or a large proportion of it, can not be devoted to better uses than to railroad construction. The benefits that it will thus confer in opening up new sources of internal industry, will more than compensate the loss to the Treasury from the land sales. But what is required is that the lands thus appropriated shall always be subject to the condition of sale to actual settlers, with the right of fee in all unsold lands reserved to the Government after a given period. An inflexible rule of this kind would kill off many of the land jobs now pending in Congress. But it would operate beneficially, rather than otherwise, to all *bona fide* projects. The knowledge that settlers would in no case be subject to any undue extortions would go far towards attracting immigration, and filling up the remote territory that still remains open to cultivation."

[U. S. Economist.]

The Burlington, Cedar Rapids & Minnesota Railway.

Although it is certain that no man can serve two masters, this is by no means true of a railroad. In fact, the more masters or interests it serves the better for it. King Coal or King Cotton alone can not make a first-class road. A railroad must serve almost every interest, and as many towns as possible to get the best possible position. If the country be ever so wild, yet, if it is worth any thing, a railroad running through it will make the country, and the country will in turn enrich it, provided always the road runs toward the centers of trade. And the more metropolitan centers it serves the better. If it were possible to conceive of a road running in such a way as to serve New York and Philadelphia too, at the same moment, such a road would be better stock than the Camden and Amboy, because it would then have at least three masters, instead of two—the two metropolitan centers, and the country, whose trade it brought these cities. Such a road must be one with a maximum value. Now, just at this moment, Chicago and St. Louis, and to some extent Milwaukee, are striving for the mastery as commercial capitals. Sometimes I think that Chicago and Milwaukee have the best of the argument, and sometimes I think St. Louis has it. When, therefore, I hear of a road that is in the interest of any one of these cities alone, I think it can't equal that ideal road that is in the interest of all of them at once. In this connec-

tion my attention has recently been called to the claims of the Burlington, Cedar Rapids, and Minnesota Railway. The result of my investigations has been that I know of no road in all the west that serves so many and such vast interests.

THE SOURCE OF WEALTH.

1. And first, the source of its wealth. It runs 330 miles through the Cedar Valley, the richest wheat field and cereal produce country in the West. The counties along its line two years ago produced over 3,000,000 bushels of wheat and over 12,000,000 bushels of other cereals, and the last year 6,900,000 bushels of wheat and some 20,000,000 bushels of other grains. It cuts across six railroads, and receives one from St. Paul at its source, thus making east and west, north and south, thirteen conduits or tributaries to its interests.

2 Again, it must, from the direction it takes toward so many other arteries of travel, receive the wealth of all above St. Paul,—the whole vast system of railways centering at St. Paul—and the Superior Lake country trade to a large extent. If the Northern Pacific is ever built—and I believe that it will be done within five years—by far the greater part of its traffic, coming from the most magnificent farming country in the world for two thousand miles in length and five hundred to one thousand miles in breadth, must be poured over the Burlington, Cedar Falls & Minnesota Railway. Add to this now all the Red River country, so recently celebrated, the Saskatchewan country, the lumber of the forests of British America, and its unequalled coal fields, its iron, copper and lead; and when we look over the frozen lakes eastward and behold this great Central Valley Railroad inviting travel to sunny climes, we see the power of this great interest in some faint degree.

THE OUTLETS OF TRADE.

3. The outlet of all this trade must show us other dominant interests of great value. A railroad is a merchant. It must have not only its goods or freight, but it must have somebody to buy them or to carry this freight to. Then, like a merchant, if it has both supply and demand, and can compete, prosperity is sure to such a road. This supply or outlet the Cedar Valley Railway has. First, I would name all this northern country. Emigration must find it. This current of emigration, with all its wealth and enterprise, must flow over this great artery of the northern railway system to cover all this vast country from Duluth to Puget's Sound and from the Hudson Bay to the sources of the Missouri river.

MILWAUKEE AND CHICAGO INTERESTS.

4. Next I would name the Milwaukee and Chicago interests. Whatever may be the opinions of men as to what city of the West shall be greatest, one thing is certain these two cities have an enormous trade at the present time. For two-thirds of its length, the Cedar Valley road furnishes the shortest possible line for all trade west of St. Paul.—Chicago must not only send out her merchandise and men into this region, but, being the nearest city she must gather up her share of return traffic, and send it eastward, where capital and labor resides to consume the same.

CALIFORNIA AND COLORADO TRAFFIC.

5. Again there is all the California and Colorado and intermediate traffic or exchange of products and population. It must flow down the Cedar Valley road all the way, until it strikes the Chicago and Rock Island Railroad, over two-thirds of its whole length. This must be true of all trade for all parts west of

Omaha, above the Rock Island road, even to the icy regions of British America.

ROUTES TO THE EAST AND SOUTH.

6. There is another interest now waxing mighty, formed by the combinations of the Toledo and Central Pennsylvania route to the Atlantic coast. And here we might name the many projects for sending trade by routes south of New York to the Atlantic coast, including all those railroad enterprises like the Chesapeake and Ohio railroad and others, for reaching parts south of Norfolk and east of New Orleans, across Western Virginia and Tennessee. All that is to connect these interests with the mines of Lake Superior, the coal of British Columbia, the wheat fields of the Upper Mississippi and Red River of the north, the lumber of Minnesota, Dakota, Montana and British America, and the yet undeveloped wealth of this new land, must move over the fruitful valley of the Upper Mississippi, penetrated in a right line by the Burlington-Cedar Rapids and Minnesota Railroad.

THE ST. LOUIS MARKET.

7. Finally, I shall mention St. Louis and all her vast and rapidly growing trade in every direction. This Cedar Valley enterprise brings the finest wheat and other cereal fields of the North within from five hundred to two hundred miles of the best market in the West. The reason why the St. Louis grain and produce market is quoted higher by some twenty to twenty-five per cent, than any other western market within the same range is this—St. Louis not only has the finest water communication with all our seaports, by way of New Orleans, both winter and summer, but her light draught ships may sail direct to Liverpool, Queenstown, or any other port. It is a settled fact that St. Louis is thereby a nearer market all the time than any city of the West. Now this road is ninety miles nearer from St. Paul to St. Louis than any other built or projected. It can not fail therefore of getting all the St. Louis trade for the Cedar Valley, from its many tributaries, as I have shown above thirteen in number, from all the region north and west of St. Paul. Being in an air line, no other road can compete. Hence, I predict for the stock and bonds of this road a maximum value the moment the road is opened. It was upon no interest, but serves, as I have shown seven of the great interests of this upper Mississippi Valley all at once. It can not fail, therefore, to be one of the most popular roads in all the West, and must be an important factor in the prosperity of this valley.

The Central Water Line.

The Legislatures of Kentucky and Ohio at their recent sessions have unanimously adopted joint resolutions relative to the James River and Kanawha canal; stating, in effect, that they look upon this channel of communication between the valley of the Mississippi and the Atlantic as a work of national importance—one involving vital interest, not only to the Western States, but to those on the western and eastern slopes of the Alleghenies, and a promoter of the welfare of all. That the said line of water communication is entitled to receive the careful consideration of Congress, to the end that, being a work of national importance, it may receive such aid from the general government, under its authority to regulate the commerce between the States, as will secure its early completion.

We are glad to see that the Western States are alive to the importance of the Virginia water line. There is no improvement con-

templated between the East and West that will be of so much advantage to the Western States as this, and the statesmen who have the sagacity to appreciate its importance, and who will devote their time, energies and influence to the promotion of its speedy completion, will deserve the gratitude of the whole country.

Virginia earnestly desires to be tied and locked to the States of the Valley of the Mississippi, and through their commerce to those on the seaboard.

The completion of the Chesapeake & Ohio Railroad and of the great central water line will make Virginia the keystone of the arch of the Union. She sends her greeting to Ohio and Kentucky, and to Cincinnati and Louisville, and to the other great States and cities of the West and North-west.

Senators Wrightson, of Campbell County, Kentucky, and Cook, of Louisville, are entitled to a vote of thanks for their zeal in behalf of this great enterprise. The first-named gentlemen followed his Kentucky resolutions to Columbus, and there gave them his earnest support.—*Richmond (Va.) Paper.*

NEW RAILROAD PROJECT.—Committees, consisting of J. G. Wait and Richard Reed, of Sturgis, Michigan, and Wm. Stough and E. G. Fay, of Bryan, Ohio, were in Mansfield, April, 22nd, in the interest of a new railroad project between that point and Sturgis, Michigan. Organizations are already completed, and officers elected in Michigan, under the name of Sturgis and Mansfield Railroad, and in Indiana under the name of the Michigan, Indianapolis and Ohio Railroad.

A meeting of leading citizens was held which resulted in the preliminary steps being taken for the incorporation of a Company. Papers were made out, certified and acknowledged, and will be filed at once at the office of the Secretary of State. The title of the Company in Ohio, having *termini* at the State line and Mansfield, is the Michigan and Mansfield Railway Company. Capital stock six hundred thousand dollars.

The following persons are incorporators: H. H. Sturgis, Wm. Bushnell, Hubbard Colby, Willard S. Hickox, James H. Cook and Henry C. Hedges, of Mansfield; Wm. Stough and E. G. Fay, of Bryan, Ohio; Chas. Foster, of Fostoria, Ohio.

The road is to pass through the Counties of Williams, Henry, Fulton, Hancock, Wood, Seneca, Crawford and Richland.

Growth of European Cities.

One of the most remarkable phenomena of the times in which we live, says the *North German Correspondent*, is assuredly the surprising increase of the population of the principal European cities. The completion of so many lines of railway has, no doubt, largely contributed to this result by facilitating a change of domicile, and the great towns seem to be gradually becoming more and more the centers towards which the business, talent, and learning of the respective countries gravitate.

London and Paris have at present about twice as many inhabitants as in 1832; Vienna has rather more than double its population; and Liverpool can boast of treble the number of souls it contained in the same year. Still more remarkable has been the progress of Berlin, the actual population of which compared with that of 1832, is in the proportion

of 3½ to 1. In the last mentioned year the metropolis of North Germany was the ninth city in Europe in point of populousness; to-day it is the fourth, as the following table will show:

	1832	1859	Increase per cent.
London.....	1,624,000	3,214,300	89
Constantinople....	1,000,000	1,500,000	50
Paris.....	890,000	1,910,000	118
St. Petersburg.....	480,000	667,000	37
Naples.....	338,000	600,000	67
Vienna.....	310,000	640,000	107
Dublin.....	300,000	362,000	21
Moscow.....	280,000	420,000	50
Berlin.....	250,000	600,000	220
Lisbon.....	240,000	240,000	41
Manchester.....	238,000	350,000	49
Amsterdam.....	210,000	250,000	12
Glasgow.....	202,000	401,000	99
Liverpool.....	190,000	520,000	174
Madrid.....	190,000	390,000	105

We may remark that in the population of Vienna, and perhaps of some other towns, several small places in the immediate neighborhood (*Vororte*) are included. Were we, on the same principle to comprehend the inhabitants of Charlottenburg and several other localities almost touching Berlin in the population of the Capital, the return would be considerably larger.

From this table it is evident that the North German capital has, in the last forty years, more than overtaken St. Petersburg, Vienna, Naples, Dublin, and Moscow. In 1861 the population of Berlin had already risen to 552,000, in 1867 it was found to be 702,000, and the policy reports show that it must at present be at least 800,000. A census will be taken in the present year, but from a variety of causes into which our space does not permit us to enter, the returns will probably remain a few thousands behind the truth.

At a meeting of the Committee appointed for the purpose, held at the rooms of the Board of Trade this week, Mr. C. J. Quetil of Wheeling, W. Va., was appointed Engineer in Chief of the Cincinnati and Portsmouth Railroad.

We understand Mr. Quetil stands high in his profession, and will enter upon duties at once.

The Pennsylvania Railroad Company have purchased the Niles Works in this city for depot grounds, for the sum of \$130,000. Exclusive of the machinery.

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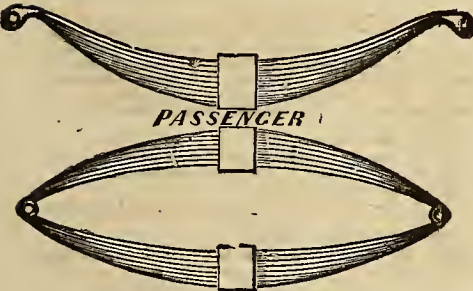
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RAILWAY SPRINGS.

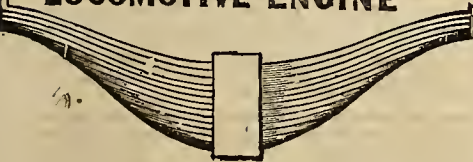
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Notice to Contractors.

CHESAPEAKE AND OHIO RAILROAD.

SEALED PROPOSALS will be received at the Engineer's office at Charleston, W. Va., until 12 M. March 1, 1870, for the GRADUATION, MASONRY and the SUPERSTRUCTURE OF BRIDGES on the Chesapeake and Ohio Railroad between the Falls of Kanawha and the Ohio River, including THREE MILLIONS CUBIC YARDS OF EXCAVATION, and SEVENTY THOUSAND CUBIC YARDS OF MASONRY.

Also, at the Engineer's office at Richmond, Va., until 12 M. March 10, 1870, for several heavy sections east of the Falls of Kanawha, including the unfinished work near Millboro', and that eight miles east of the White Sulphur Springs the Great Bend tunnel, 6,400 feet; Lewis tunnel, 3,800 feet; five other tunnels from 500 to 1,700 feet long; several sections in rock cutting; and about 70,000 cubic yards of masonry.

Profiles and specifications can be found at the office of the company 54 William street, New York, on and after February 1; at Richmond, Va., and at Charleston, W. Va., on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia.

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JANUARY 1st, 1870.

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The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MAY 5, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

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WRIGHTSON & CO., Prop'r's.

Montana and the Northern Pacific R. R.

We have frequently spoken in the RECORD of the necessity and eventually of the profit made in stock of the Northern Pacific Railroad. While Government has refused it a money subsidy, it has nevertheless an immense land grant; which, in consequence of the better soils and more abundant products, will eventually pay the whole cost of making the road. For 800 miles, as we have heretofore said, the Northern Pacific will pass through good lands. This is what the Central Pacific does not, and the Southern Pacific will not. The Northern Pacific will pass through the State of Minnesota, and the Territories of Dakota, Montana, Idaho and Washington. The distance in each of these, estimating on the proposed route of the road, will stand nearly thus:

In Minnesota, (from Lake Superior) 230 miles	
" Dakota.....	360 "
" Montana.....	650 "
" Washington.....	360 "
" Idaho.....	60 "

Total length Northern Pacific.....1,660 miles

From Lake Superior to the crossing of Missouri River is 940 miles, and that whole country may be regarded as arable lands, and in a comparatively good climate, and destined to be the great wheat region of the continent. We are within bounds then when we say, that the Northern Pacific has a land grant through 800 miles of good country, besides much, no doubt, which lies in the valley beyond that.

It will be observed, that nearly half the

road is in the great territory of MONTANA. This makes it interesting to know what sort of a country that is. We have before us a document, which contains much interesting information upon that country, from which we will digest a brief account of that territory:

Near the geographical center of the North American Continent, between the 45th and 49th parallels of north latitude, and the 27th and 39th meridian west from Washington, lies the beautiful and inviting young Territory of Montana—one of the fairest and most promising of all the Territories of the American Union. Its territorial area is 143,776 square miles. From east to west it is 750 miles long, and in width is about 275 miles from south to north. This area is three times that of New York, and *two and a half* that of the six New England States. Of this immense area the Rocky Mountain ranges and their spurs comprise perhaps one-half. The other half may be divided into foot-hills and table and bottom lands.

From the crossing of the Missouri to the western boundary of Montana, is about 300 miles, and this is the only part on the line of the Northern Pacific, in Montana, which is mountainous. There is, therefore, 350 or 400 miles of the Northern Pacific in Montana, which is of easy grade and good lands.

Something over sixty years ago, Lewis and Clark, two officers of the United States army, with a detachment of men, were ordered to explore the sources of the Missouri, and the passes of the Rocky Mountains, in what is now Montana. They did so, and the record of their travels was very interesting. Most of the great streams on either side of the mountains were discovered by them. The main Missouri was formed by three streams, or forks, which are respectively called Jefferson, Madison and Gallatin rivers:

East of the main range of the Rocky Mountains, the country is also well watered by clear streams and beautiful rivers. Through the fertile and delighted valleys of the Gallatin, Madison and Jefferson flow the rivers of the same name, which unite about fifty miles east of Helena, and form the Missouri river. From the Three Forks it runs north to Fort Benton, receiving, before reaching that point, Crow Creek, the Prickly Pear, the Dearborn and Sun rivers and other streams of lesser note.

Of course, it is well known that from Fort Benton, the Missouri is navigable for steamboats of three or four hundred tons burden.

In the early period of our country, such a river and such a navigation as the Missouri now presents, was not thought of, either in Europe or America. Suppose, what will be in a few years—a commercial town at Fort Benton, and the magnificent territory of Montana populous as one of our central States. Then we see a steamboat from Fort Benton pursuing its voyage to the Gulf of Mexico, to Pittsburg on the Ohio, to Nashville on the Cumberland, and to Little Rock on the Arkansas. What a vast internal navigation is this! Nothing like it has ever been seen on earth before; and it could not be seen now

but for the expansive power of steam. Let us now take this power and see it applied to land carriage—the railroad and the locomotive. The Union Pacific is now in operation; but it is only necessary to look upon a map to see that the Northern Pacific is to be both more important and more profitable. Let us look a little more at the rivers and waters. West of the main range of the Rocky Mountains are Deer Lodge River, Hell Gate River, and Clark's Fork of the Columbia River, which flows through Western Montana, Washington and Oregon, to the Pacific Ocean:

Clark's Fork of the Columbia from Thompson's Falls to Pen d'Oreille Lake is navigable for steamboats, such as run on the Ohio. Two new stern-wheel steamers have recently been built for this river by the Oregon Steam Navigation Company, one of which has made a trial trip up as far as the Falls. It is believed that in a short time the river above the Falls, as also the Flat Head river and Flat Head Lake, will have steamboats running on them.

Yes! within the very circuit of the Rocky Mountains, lie great rivers and lakes, which for thousands of miles are navigable for steamboats. In Europe or Asia, it might be hundreds of years before the unknown, mysterious and yet grand country, would be opened up to commerce and civilization. But here, with the nerve and energy and public spirit of the American people, the mountains, valleys and great plains of the West will soon be cultivated, and arts and commerce fill that region with rejoicing.

Somebody who looks only to lines of latitude as determining climate, may say: "Oh! this is all very well. There is plenty of good land, and plenty of streams and water courses, but what an awful climate! It is too cold, every thing will freeze up!" Not at all. This is a great mistake. The truth will probably appear very soon, that the Central Pacific has taken the most difficult and costly, as well as least productive routes to the Pacific.

Of the climate of Montana, this is the testimony given by the Immigrant Association, signed by the Governor of the territory:

The climate of Montana is most delightful. The atmosphere in Summer and Winter is pure, dry, exhilarating and healthy. We have no Fever and Ague, and none of the diseases incident to the damp and changeable climate of New England and the North-west.

The mean annual temperature of Montana is about the same as that of Pennsylvania. It is claimed that one of the principal reasons for this mild climate is to be found in the fact that the Japan current of the Pacific Ocean corresponds both in character and in its effects with the Gulf Stream of the Atlantic. As the latter flows from the Gulf of Mexico along the east coast of America, and is precipitated with its warmth and moisture upon the North-west coast of Europe, so the Japan current of the Pacific, as it issues from the China Sea and sweeps the Eastern coast of Asia, is forced by the contour of the Continents upon the North-west coast of America. The genial effect of the warm currents of air

and mild south-west winds, which accompany this Gulf Stream of the Pacific, are felt throughout Washington and Montana Territories and Oregon and Northern California. It is also claimed by many that the numerous hot springs, which abound in Montana, have an effect upon the climate; but this theory is not generally received.

Whatever may be the cause, it is certain that the climate of Montana, Idaho and Washington, is better than that of Colorado, and the range of mountains through which the Central passes. One-third of the territory of Montana is arable, and that is a space equal to that of the State of Ohio.

The Immigrant Circular says:

We have been favored by Colonel W. W. De Lacy with the following statement relative to the altitude of the principal towns and mountain ranges of Montana. Helena is 4,300 feet above the level of the sea; Ft. Benton 3,000 feet, Virginia City 5,400 feet, Deer Lodge 4,000 feet, Missoula 3,300 feet. The height of the Rock Mountains, at the southern boundary of Montana, where they intersect with the Rocky Range, is 9,000 feet. The height of the Snowy Range, at a point thirty miles east of Junction Station, is 10,000 feet. The altitudes of the prominent mountain passes are as follows: Cœur d'Alene Pass, in Bitter Root Mountains, 5,100 feet; Mullen Pass, in Rocky Mountains, 6,000.

The value of agricultural products raised in Montana last year was \$4,000,000. This shows that no one need fear there will not be abundance of food for the emigrants.

We have been thus particular in describing Montana, because the Northern Pacific passes for near 700 miles through that territory; and there all the difficulties of mountain and climate are to be encountered. We have arrived now at these *general facts*, which are now beyond a doubt:

1. The body of good lands on the Northern Pacific route are much greater and better than on either of the routes south of it.

2. The navigable rivers and waters connected with it are much the greatest and most practicable.

3. The climate is the best; for it shows that the temperature on Clark River, Montana, in latitude 48°, is the same with that of St. Joseph, Mo., in 41°, and of Philadelphia in 40°.

4. The mountain passes are lower than on the Central.

If these be facts, it is no wonder that the Northern Pacific Railroad Company are going on with the work, and that its construction may be deemed certain. All of the Northern Pacific road in Minnesota, from St. Louis River, emptying into Lake Superior, to the Red River of the North, 230 miles, will be under contract on the 1st of June. This will be followed no doubt by making that part in Dakota. The Northern Pacific cannot be made so rapidly as was the Central Pacific, because it has no vast Government bond subsidy; but it will be made beyond doubt, and as fast as private capital can be made available. It is pertinent now to ask what has been done by

the Government or the Company towards securing the road through the northern peninsula of Michigan. This road should be brought down to the Straits of Mackinaw, where center the great inland seas of North America. Any failure to do that will be a failure to seize one of the great advantages which this road offers.

Rockport & Northern Central R. R.

During the past week the friends of this enterprise have been at work organizing committees, and preparing for a vigorous canvass among the citizens, to obtain the necessary \$300,000. The daily press has come to their aid, and trumpeted the merits of the scheme, and urged our people to respond to this call.

This energy is highly commendable; and if the cause was a good one, we would not only wish them success, but would cast our mite into the scale and help all we could.

But, a further examination into this matter, has confirmed us in the opinion we expressed last week, and we therefore continue opposed to our leading men taking such an interest in this project, if by so doing, they expect to effect the control of the Southern trade to this city, as it can be by several other projected schemes, or that it will answer the demands of our Southern trade at all, except for the immediate section through which this road is to pass; or that it will supersede the necessity for the construction of, or lessen the cost to our city, of the *direct Southern road to Chattanooga*.

However, if our merchants and others engage in this scheme for individual profit, place their money in it as an investment, for the sake of sharing the \$300,000 local donation, we have nothing to say, because that would be none of our business.

In our opinion the proffer is not attractive.

1st. For all the reasons set forth in our last week's RECORD, and which are in the main, if not wholly, confirmed by later investigations.

2d. Because the line from Rockport on the Ohio river to any practical point of intersection on the Ohio & Mississippi Railroad, will be at least sixty-five miles in length, instead of sixty miles, as reported, and will therefore cost more than is now estimated.

3d. Because the terminus of the line south of the Ohio river is at Owensboro, *nine miles below* the river terminus of the northern part at Rockport, and consequently compels *nine* miles of ferrage, or an extended road down the river bank, and a railroad bridge across the Ohio, that will cost at least *one and a half million of dollars more*.

4th. Because an experienced engineer who has been over the country through which this road is to run, assures us that the cost of grading will be much higher than that given by President LeBreuler, and that it will cost about \$200,000 to bridge White river; thus requiring additional outlays of probably \$300,000 to \$500,000 more, to save that which is now asked from our citizens.

5th. Because the local subscription is condi-

tioned to be paid only when the road is completed and running; thus, imposing the whole burden of construction, and all the risks and losses upon those who become stockholders and undertake the work. That there may be no misunderstanding on this point, we publish the following from the *Jasper Weekly Courier*, and it "speaks for itself," as the

ARTICLE OF DONATION FOR THE ROCKPORT AND N. C. RAILWAY.—In consideration of promoting our own interest and the interest of the people generally, and for the purpose of aiding in the construction of a Railroad from Rockport in Spencer County, Indiana, to the Ohio and Mississippi Railroad, and if practicable to a point on the Indianapolis and Vincennes Railroad, we whose names are hereunto subscribed, each promise for ourselves, and not for another, to pay to the Rockport and Northern Central Railway Com any, the sums set opposite our names, payable when the said Railroad is finished, from Rockport to the Ohio and Mississippi Railroad, for the transportation of freight and passengers. But no part of this subscription and donation is due until a train for passengers and freight shall have passed over the entire line from Rockport to the Ohio and Mississippi Railroad, and provided further, that said Railroad runs within one-half mile of the Court House in the town of Jasper, in the County of Dubois. Witness our hands and seals, 1870.

6th. In response to the following inquiry propounded in the *Gazette* of April 30, "How can Cincinnati reach the trade of South-west Indiana, and the Green River country in Kentucky, so as to enable her to compete for it on equal terms with other commercial and manufacturing cities, without this road?" We respond, there is a road now in process of construction, and supplied with means that insures its completion, from Mt. Carmel on the Wabash river, through the counties in Indiana, of Gibson, Pike, DuBois, Crawford, Harrison and Floyd (the very heart of the country the Rockport road is intended to cross), to New Albany. From that point this city is reached via the Ohio and Mississippi road and its branch from North Vernon.

7th. And finally, if it is advisable to reach the South by way of Owensboro, a better, because cheaper, line can be obtained from a point in Crawford county, on the New Albany & Mt. Carmel road, down the ridge on the east side of Anderson's creek, passing over the iron beds and great canal coal deposits (which the Rockport and Logosotee route does not), to Cannelton. This is quite as short a line as the one proposed, and in every respect, as desirable for the business of Cincinnati.

Cannelton is a thriving manufacturing town, upon the Ohio river, and distant from the New Albany and Mt. Carmel road, about thirty miles, through a really splendid country, that would admit of cheap railroad construction.

As to the ferry from Rockport to Owensboro, it is only *nine miles long*! This puts us in mind of Sidney Smith's description of the sufferings of the Giraffe from cold, "just think once of two yards of sore throat!" But then, if we have got to have it, let us have a "big thing;" the ferry from Cannelton to Owensboro would be only thirty miles. The cost of loading and unloading being the same in both

cases, that of drifting a few miles further upon the Ohio river amounts to nothing. Or, if you don't like the *long ferry*, make one to Hawesville, Ky., directly opposite Cannelton, and then by a short cut railroad, cutting off the bend of the river, go direct to Owensboro, and to destination.

Before our citizens engage in this scheme, or allow themselves to be pressed into its support, by the energetic stock solicitors who will call upon them, they should look into these facts, they will find them as stated, and will, we think, be induced to save their means for a better and more necessary undertaking.

We should keep an *eye single* to the Southern road direct. That, we know all about, and as it will require all the aid our city can give individually or collectively, any diversion of resources, is only so much taken from it, and will delay the inauguration of the work the longer, or cripple its progress.

Death of Zerah Colburn.

We are pained to chronicle the unhappy death of one so distinguished and well known among the railway circles of Europe and America as ZERAH COLBURN.

This gentleman, in his prime, was the most remarkable mechanical genius of his day. He was a nephew of the celebrated natural mathematical calculator whose name he bore, and who is celebrated in history as a mathematical prodigy.

Mr. COLBURN's life was an eventful one, and we are sorry now to learn that it was not also a happy one. He was raised upon a farm in New Hampshire, and is said to have been subject to very hard labor; but his great mechanical powers, cropping out upon all occasions, attracted attention, and he was called to fill important positions in locomotive factories at Boston, New York and Richmond. He next became the editor of the *New York Railroad Advocate*, but for some reason left this post, although the undertaking was successful. We next hear of him as a land speculator in the West, and then as the manufacturer of patent railway tires, and afterwards he went to England, and in the city of London published *The Engineering*, a paper of great ability and influence. He next turns up in Philadelphia, where he started a mechanical paper, that is understood to have been a failure. Soon after this misfortune he returns to England again, and assumes his old position in *The Engineering*, winning golden opinions for his skill and success in working out difficult engineering problems.

In this service he seems to have broken down, and a few weeks since returned to the United States, exhausted by excessive labor, and weakened by bad habits, a lamentable wreck of what he was, and in a moment of despair he ended his life by his own hand.

Another evidence of the fate of genius without the direction of sound morals. "May peace be to his ashes."

There was a report on the street yesterday that the Cincinnati, Hamilton & Dayton Railroad Co., had, within a few days, paid the Cincinnati Enquirer "two thousand dollars for printing." The Enquirer having supported Mr. L'HOMMEDEU, the inference was that this sum was paid for editorial services. Upon inquiry we learn that the bill was paid as stated, but not by Mr. L'HOMMEDEU or with his knowledge or consent. Mr. L'HOMMEDEU published a circular to stockholders, which was reproduced in the *Gazette and Commercial*, as a matter of news, and, of course, without charge. For this the Enquirer presented a bill during Mr. L'HOMMEDEU's absence, which was allowed by Mr. McLAREN and paid. The opposition of our neighbor to the "ring" was not without profit. The Enquirer cast its bread upon the water and it returned immediately. — *Gazette*.

It was a great query as to how the *Enquirer* should have become so suddenly filled with virtuous indignation at the iniquity and wickedness of "rings." Indeed, the symptoms were of such an alarming character that many of its friends were fearful lest they would "strike in," and if so, the result might be fatal. It is now, however, fully explained, and we trust there is hope.

Our esteemed friend Mr. H. P. CLOUGH General Freight Agent of the Erie & A. & G. W. Railways, met a number of his numerous friends at his residence in Middletown, Ohio, on the 2nd, and celebrated his silver wedding.

We hope during the next quarter of a century Mr. CLOUGH may be as happy and prosperous as in the last, and that the golden era will find his shadow no less than at present, and his prospects ahead brightening.

DAYTON & CINCINNATI (SHORT LINE) RAILROAD—At a meeting of the directors of this Company at their office in this city, on Friday last, THOMAS WRIGHTSON, of Newport, Kentucky, and A. J. HODDER, of Celina, Ohio, were elected directors, and subsequently Mr. HODDER was elected President of the road.

LAKE SUPERIOR RAILROAD.—A correspondent of the *Baltimore Sun*, writing from St. Paul Minn. says: "The Lake Superior Railroad which is probably attracting the attention of the entire country more than any other road in the North-west, is now open to Kettle river, 96 miles, and the balance (50 miles to Duluth) will be completed at the rate of about one mile a day, although the formal opening will not occur until the 4th of July next. Over two thousand men are constantly employed on the road. Negotiations are pending, to be completed in a few days, for the lease of the Sioux City railroad to the Pennsylvania Central, thus virtually carrying out the original plan of having one controlling power and one unbroken line from Lake Superior, via St. Paul, to Sioux City, and then on to a junction with the Union Pacific Railroad. Men are already at work in surveying the Northern Pacific route, and in less than four years cars will run direct from St. Paul to Portland, Oregon."

Cincinnati, Hamilton & Dayton Railroad.

The following report of the President of this road ought to be highly satisfactory to the stockholders, and we think justifies Mr. L'HOMMEDEU's rights to a re-election.

The best feature in this exhibit is the reduction of operating expenses below what is generally regarded as the minimum rate—viz.: fifty per cent.

When our first-class roads can be thus managed, they will become the most desirable investments in the country:

PRESIDENT'S OFFICE C. H. & D. R. R. Co.
CINCINNATI, May 3, 1870.

To the Stockholders:

GENTLEMEN—In accordance with the requirements of the charter, I herewith submit a statement of the business of your road for the year ending March 31, 1870. It will be seen from the report of the Secretary that the

Gross earnings have been.....	\$1,191,457.45
Transportation expenses.....	579,964.08

Leaving for interest on bonds, taxes and dividends.....	\$611,493.37
--	--------------

The working expenses have been 49 76-100 per cent. of the gross earnings.

The earnings per mile have been...	\$19,857.062
Number of passengers carried.....	669,252
Number of tons of freight moved in narrow gauge cars.....	395,432

During the past year two dividends have been paid to the stockholders, one of five and the other of four per cent., free of Government tax. The net earnings have been a fraction over eleven per cent.

The road has been operated with its usual freedom from accidents and loss of life, and maintained in first class condition.

DAYTON AND MICHIGAN RAILROAD.

The business of this road continues to increase, and meet the expectation of our company. From the time it was leased, it has earned more than sufficient to pay running expenses and the interest on its bonded debt, which was the consideration of the lease. Its property has been largely increased by the purchase of valuable depot grounds in the city of Toledo, measuring about half a mile of river front, and by building freight depots for the increasing business at that important point. It is generally conceded that the location of the depot grounds in Toledo of the D. & M. road are preferable to those of any other railroad terminating there.

The equipment of the road has been largely increased and kept in first-class order.

More depot buildings are required at different stations on the line of the road, and the fencing must be extended.

Arising out of jealousy and differences springing from the location of the county seat between Troy and Piqua, an unfortunate location of a few miles, both for the interest of the road and for Piqua, was made. The citizens of both Troy and Piqua are at this day desirous that the location should be changed; and it is believed that the additional business to be derived from both places would fully justify the measure if the company had the means on hand to make the improvement. The change involves the removal of about nine miles of track from one side of the river to the other, and a new bridge over the Great Miami in place of the present one that can last but a few years longer.

It will be remembered by our stockholders that at the time the Dayton & Michigan road was leased perpetually to our company, a bonus of one million dollars of their stock was made a part of the consideration. This stock, together with that previously held and since purchased, at a very low figure, gives our company a majority interest of 26,494 shares to 21,506.

CINCINNATI, RICHMOND AND CHICAGO RAILROAD COMPANY.

The business of this road, for want of an outlet beyond Richmond, has not met the hopes of our company. So far, since we leased the road, it has not paid for the necessary renewal of bridges, running expenses and interest on its bonds. Its local business, however, is increasing slowly, which will ultimately, we hope, make it fairly remunerative to the C. H. & D. Co.

The extension of the Richmond & Fort Wayne road to Ridgeville the present year will add something to the traffic of the road. The position which this road occupies in relation to ours, with a charter more liberal, if not extraordinary, forbids any idea of letting it pass into other hands that might prove adverse to the C. H. & D. Co.

CINCINNATI AND INDIANAPOLIS RAILROAD.

This road, which connects with the Cincinnati, Hamilton & Dayton at Hamilton, continues to give us a large amount of business, and to receive from us in return about an equal amount. It will be remembered that our company originally subscribed two hundred thousand dollars to this road, more than it has to all our other connecting roads combined. The business done in connection with us, which otherwise would not have reached our road, have amply repaid us for the outlay. Our board still regard that road as one of great importance, and when it shall have been completed, in its extension to Fort Wayne, one of still greater importance to our city. It has had its struggles, more than ordinarily met with in similar enterprises, and great credit is due the untiring energy and faith of those who have had charge of its construction and management, and our board unite in the general sentiment of hope and belief that final success is about to reward its owners.

THE ATLANTIC AND GREAT WESTERN AND ERIE RAILWAYS.

Our relations with these two roads remain harmonious, and all obligations on the part of both parties are promptly met. The present contract between the Cincinnati, Hamilton & Dayton and Erie, made for the period of ten years, is believed to be fair and satisfactory. It gives the Erie all the advantages she would have if her own road actually terminated in Cincinnati, and relieves our company of the anxiety and trouble of a through Eastern business; is fairly remunerative to our company for the large expenditure of building an extra track for the broad gauge business, and leaves us full time to devote to the local traffic of our road, by far the most important.

THE CLEVELAND, SANDUSKY AND CINCINNATI RAILROAD.

Our business with this connecting road remains as heretofore, satisfactory and profitable to both companies. The amount of traffic interchanged is steadily on the increase, and the rates received for the transportation of both passengers and freight are remunerative. In some articles of traffic, such as lumber from Northern Michigan, ice from Sandusky and Toledo, to Cincinnati and other

points, there has been lately sharp competition between the Dayton & Michigan and C. S. & C. roads; but this has been overcome by an agreement between the parties to select a common agent, to secure and equally distribute the lumber from points beyond Toledo and Sandusky.

This pioneer road of Ohio, under its present management, has been greatly improved, and bids fair to again assume its old position as one of the most important roads of the State. The travel over it, in connection with our road to and from the islands of Lake Erie, during the summer season, is rapidly increasing, and the full improvements being made at Put-in-Bay, and other points, for the accommodation of visitors during the summer, will doubtless prove profitable to the roads.

In closing this, my twenty-second annual report, it is proper to refer to a few facts in the history of the company, that may well be considered causes of congratulation to our stockholders and to the public.

It should be remembered that whilst your company never asked or received aid from any city, county, or township, by way of subscription, donation or loan of credit, it has gone straight forward in building one of the best roads in the West, meeting all its obligations, large and small, punctually, without even having a piece of paper protested, for lack of means to pay or disposition so to do. That from the year 1849, after a million of dollars had been subscribed and the rights of way secured, and when the contract for construction was closed, it has earned and paid to its stockholders an average dividend of upward of eight per cent. per annum, more than any other road terminating in Cincinnati has paid to its stockholders, from its commencement. And this, notwithstanding the large and continued outlay necessary to provide for increasing business, and the subscriptions voted by our stockholders to aid connecting and branch roads.

That the company is now free from any floating, and has but a comparatively small bonded debt; that it has no longer any occasion to apply its net earnings to any other purpose than cash dividends to its stockholders, with a fair prospect of their being satisfactory; that the company hold good reserved assets, sufficient to secure regular dividends, in case of any unforeseen casualties; that their property, on the whole, is worth a large amount more than it cost, or which is represented by stock and bonds; that those of its Directors who, after many years of faithful service, have departed this life, and those who still remain, had the foresight to secure, within a reasonable distance of the center of the present city of Cincinnati, a large amount of real estate, at a small cost, sufficient for the present and the future requirements of a great business.

That since the day the road was opened for business, in the fall of 1851, it has been remarkably free from accidents to either persons or property, and that of nine millions carried, but nine passengers have lost their lives.

That the superior accommodations furnished, in the number of passenger trains for local travel, beyond that of any other road leading from our city, has built up an almost continued village from Cincinnati to Hamilton, and has contributed largely to the wealth and population of all the cities on its line. That its employees of all ranks, with scarcely an exception, have proven faithful to their trusts, and have been educated and promoted

on the road, each one being taught to feel that they had an interest in the same, beyond their mere salary; that the best of feeling toward the road has been cultivated and manifested by those whose lands were of necessity taken for rights of way, and wherever destruction came from fire or flood, they have always been the first to the rescue; that the best of relations have been maintained with all connecting roads, and a liberal course pursued toward them; that the road has earned the reputation among the best railroad men of the country of being one that is well constructed and well managed, and worked at a percentage of the gross earnings much below other well-managed roads; that while its stock has not commanded as high a price in the market, from causes not necessary here to enumerate, its *intrinsic* value has been all the while increasing, and it should not be parted with now at less than par in gold.

The Cincinnati, Hamilton & Dayton occupies the position of a trunk road, for business from the Cincinnati & Indianapolis Junction, the Cincinnati, Richmond & Chicago, the Dayton & Union, the Dayton & Michigan, the Cleveland, Sandusky & Cincinnati, the Atlantic & Great Western and Erie Railroads.

It has not only the narrow, but broad gauge tracks, with ample means to accommodate the immense Cincinnati and South-western business of all these roads, besides the large local business of our own Miami Valley. Its policy is to extend equal facilities to all, and maintain strict neutrality between them, asking for nothing which they are not willing to concede, and agreeing to no contracts which are not equally fair to both and all parties. So long as such a policy is pursued by our company, there will exist no real necessity for another road down our valley, it having already a canal and a railroad, as well as a railroad of the very first class running parallel and distant only fourteen or fifteen miles.

The scare-crow of a railroad for the past twenty years has served the purpose of frightening timid stockholders and of depressing the market value of the stock.

The day is distant when the C. H. & D. road will not be able to accommodate the business of all roads terminating at Dayton, and that of those leading to our valley this side of Dayton, at one-third what it would cost them to build independently into Cincinnati, and do their own work; and until this company gives just cause of offense by pursuing a different policy from the past, there will be no occasion for a road being built, which would probably not pay more than running expenses. Respectfully submitted,

S. S. L' HOMMEDIEU.

HASTINGS AND DAKOTA RAILROAD.—The St. Paul Press gives the following account of the above road, which the Milwaukee and St. Paul Company have just bought: "Of this railroad thirty miles are constructed from Hastings to a point ten miles west of Farmington. Its projected line as fixed by legislation, runs, via Shakopee, through the counties of Carver, McLeod and Renville. It is endowed with about 300,000 acres of land, to obtain which the construction of 200 miles of railroad is required. Sixty miles more are required to be completed before any further lands enure to the company which had it in hand, but the Milwaukee and St. Paul, with their large resources, will find it easy to prosecute the work. It will form a valuable feeder to their line."

Ancient Railroad History.

From an able report on the improvement of the navigation of the Kentucky River, made by that eminent engineer, SYLVESTER WELCH, to the Kentucky Legislature, in December, 1836, we extract the following scraps of ancient railroad history, which, at the present day is very interesting, and new to many of our readers, as well as a valuable contribution to railroad literature:

"COLUMBIA AND PHILADELPHIA RAILWAY, PA.

"This railroad extends from the town of Columbia on the Susquehanna river, where the eastern division of the canal terminates, to the city of Philadelphia, a distance of 82 miles. It has a double track throughout its whole extent. Edge rails of maleable iron, weighing a little more than forty pounds to the yard in length, secured in cast iron chairs placed at intervals of 3 feet, partly upon stone blocks and partly upon a foundation of timber, are used for the railway on the greater part of the distance. On the end towards Philadelphia, one track for a distance of ten miles, is laid with granite sills, capped with flat bars of iron $2\frac{1}{2}$ inches wide, and $\frac{5}{8}$ of an inch thick. A portion of the other track is laid with wooden rails, capped with similar bars of iron. Other short pieces of the road are laid with timber rails: the longest is at the Mine Ridge, where the foundation is laid upon a bed of quicksand, and secured by piles. This road has two inclined planes, one near each end. It was finished in 1835, and cost exclusive of the purchase of land, damages, and the purchase of locomotive engines, \$40,621 per mile."

ALLEGHENY PORTAGE RAILROAD, PA.

"This railroad commences at Johnstown, in Cambria county, and extends with a double track across the Allegheny mountain to Hollidaysburg, in Huntingdon county. Its length is 36 7-10 miles. It forms a connection between the Western and Juniata divisions of the Pennsylvania canal. There are 10 inclined planes, five on each side of the mountain, each of which is furnished with two stationary steam engines. The ascent from Johnstown to the summit level of the railroad is 1171 $\frac{3}{4}$ feet, and the descent from the summit to Hollidaysburg is 1398 $\frac{3}{4}$ feet. The level parts of the railway, are formed of edge rails, of maleable iron, weighing 39 $\frac{1}{2}$ pounds to the yard in length, secured in cast iron chairs placed at intervals of 3 feet, partly upon blocks of stone, and partly upon a foundation of wood. On the inclined planes and on a small portion of the level parts of the road, the railway is formed of timber rails capped with flat bars of iron $2\frac{1}{2}$ inches wide, and $\frac{5}{8}$ of an inch thick. This railway was finished in 1835, and cost, including the purchase of land, damages, depots and machine shops, and all machinery except locomotive engines, \$47,371 per mile."

THE DELAWARE AND HUDSON CANAL COS. RAILROAD, PA.

"This road extends from the coal mines in the Lackawanna valley, across the Moosick mountain, to Honesdale, the western termination of the Delaware and Hudson canal. It has a single track eleven miles, and five miles of double track. The rails are wood, capped with flat bars of iron, 2 inches wide and half an inch thick. The railway, where it passes over ravines and low grounds, is supported

upon tressels which are substituted for embankments. The ascent from the coal mines to the summit of the mountain is 855 feet, and the descent from the summit to the canal is 913 feet. There are eight inclined planes, five of which are worked by stationary steam engines. The road cost about \$10,500 per mile."

LITTLE SCHUYLKILL RAILROAD, PA.

"About 23 miles long, extends from Port Clinton, on the Schuylkill river, along the valley of the Little Schuylkill to the coal mines near Tamaqua. The road is graded for a double track. A single track with turnouts only, is laid down. The railway is formed of a timber rail, capped with flat bars of iron, 2 inches wide and half an inch thick. The road cost \$9,800 per mile. It is to be continued to the town of Catawissa, on the Susquehanna river."

BALTIMORE AND OHIO RAILROAD, MD.

"From Baltimore to the Point of Rocks, 67 $\frac{1}{2}$ miles—double track. The rails are principally of wood, capped with flat bars of iron, $2\frac{1}{2}$ inches wide, and $\frac{5}{8}$ of an inch thick. On the end near Baltimore, a portion of the railroad is formed of granite sills, capped with bars of iron similar to the bars on the timber rails. This railroad has four inclined planes, two on each side of Parr's Spring ridge. Cars are drawn over these planes by horses. The cost of the road as stated in the report of the Chief Engineer (Oct. 1832) is \$29,193 per mile."

BALTIMORE AND WASHINGTON RAILROAD, MD.

"This road diverges from the Baltimore and Ohio railroad about 6 miles from Baltimore, and extends thence 30 miles to the city of Washington. The railway is formed with a light edge rail, made broad at the bottom, placed upon a longitudinal rail of wood. It has a double track, and cost as per report of the Baltimore and Ohio railroad Co (who have the direction of the road,) 1833, \$50,500 per mile."

MOHAWK AND HUDSON RAILROAD, N.Y.

"This road extends from Albany to Schenectady 16 miles—double track. The roadway is formed of timber rails, capped with flat bars of iron—The foundation is partly of stone and partly of timber. Cost per mile \$38,107."

SARATOGA AND SCHENECTADY RAILROAD, N.Y.

"This road extends from the city of Schenectady to the Saratoga Springs, 22 miles. The railway consists of a single track, formed of wooden rails, laid mostly upon a timber foundation, and capped with flat bars of iron, $2\frac{1}{2}$ inches wide, and $\frac{5}{8}$ of an inch thick. Cost \$11,010 per mile, exclusive of buildings, &c."

NEW CASTLE AND FRENCHTOWN RAILROAD, DEL.

"This road extends from New Castle, Delaware, across the State, 16 miles, to Frenchtown. Single track on the greater part of the distance. The railway is formed of timber rails, placed mostly upon a light stone foundation, and capped with flat bars of iron. Cost about \$30,000 per mile."

CAMDEN AND AMBOY RAILROAD, N. J.

"From Amboy to Bordentown, 33 miles—double track. The railway is formed principally of edge rails of maleable iron, secured to the foundation without the aid of chairs. The foundation is partly of stone and partly of wood. This part of the road cost about \$30,000 per mile."

SOUTH CAROLINA RAILROAD, S.C.

"This railroad extends from the city of Charleston to the Savannah river, opposite Augusta, Georgia, 130 miles. The railway is formed of timber rails, capped with flat bars of iron. It is supported over the low grounds upon piles, instead of embankment. It cost about \$7,000 per mile."

ILLINOIS CENTRAL R R.—The extension of the Cedar Falls and Minnesota Branch of the Iowa Division of this road from St. Ansgar to the Minnesota line will probably be accepted from the hands of the contractors soon. At present trains run as far as Mona, four miles south of the line and fifteen miles south of Austin. It is not probable that the connection with the Milwaukee and St. Paul road between the State line and St. Paul will be of much value, as, very naturally, the Milwaukee and St. Paul Company prefers to take every thing eastward over their own lines. A company has been formed at St. Paul to provide a connection by building a line some distance to the east of the Milwaukee road through Cannon Falls and Mantorville to a junction with the Illinois Central's road near the State line. Such a road would at once open a new and independent route from Minnesota to Chicago and the East, and establish a formidable competition to the Milwaukee and St. Paul and the Chicago and Northwestern. If this line is built the Illinois Central will feel more strongly than ever the necessity of a short route from Dubuque to Chicago, a need which is likely to be supplied by one of two or three lines likely to be put under contract soon.—*Railroad Gaz.*

THE CHESAPEAKE AND OHIO RAILROAD.—Henry S. Walker writes as follows to the *Wheeling Register*:

"The contracts for the completion of the road from Gauley to the Ohio (one hundred miles) have been awarded, and the time for their fulfillment fixed, under heavy penalties, at May 1, 1871. The contracts for the heavy work on the line from Gauley eastward have also been let. This portion of the road, owing to the tunneling, heavy cuts and embankments along the route, it will require two and a half years to finish. About two thousand laborers are already at work, and their number will be increased to six thousand within two weeks."

NEW APPLICATION OF BARYTA.—The sulphate of baryta is said to possess many advantages over lime as a material for whitewashing walls—4 ozs of glue is soaked for twelve hours in tepid water, and then placed until it boils in a tin vessel, with a quart of water—the vessel being placed in water, as in the usual process of melting glue, the whole is then stirred until dissolved. Six or eight pounds of sulphate of baryta, reduced to an impalpable powder, is put into another vessel; hot water is added, and the whole stirred until it has the appearance of milk of lime. The sizing is then added, and the whole stirred well together and applied in the ordinary way whilst still warm.

It is found says the *North German Correspondent* of Berlin, "by experiments recently made by the military authorities, that a sheet of ice three inches thick affords a perfectly safe passage for infantry or horses marching in single file, and for light carriages; with a thickness of six inches it will bear all kinds of wagons and cannons."

Explosive Materials.

The lecture of which the following is a report, was delivered by Professor Ogden R. Poremus, at the Hall of the Young Men's Christian Association, for the benefit of the Soldier's Home in this city.

We are not to forget the Professor facetiously remarked, that we are living upon an explosive material, that it may at any time explode, and we find ourselves among the flying fragments. Even our own country is not exempt from the convulsions which, from time to time, shake the earth.

Explosive bodies or materials were defined as those prone to swift motion. They are divided into three classes; solid, liquid and gaseous; but in each there is the same tendency to swift motion.

Gunpowder, one of these substances, is the greatest civilizer of modern times; because the more deadly we make the art of war, the more suicidal it becomes, and the less frequently will it occur. War, however, uses less gunpowder than Peace. The composition remains the same as in the most ancient times—carbon, charcoal, and nitrate of potash—and in very nearly the same proportions as then. Many experiments have been made for the purpose of finding the best wood and the best means of preparing the charcoal from it, but that point is not fully decided.

The fact that powdered carbon will take fire spontaneously, and could not be used in this form, was noticed. Many buildings in this city have been destroyed by spontaneous combustion, which is of more common occurrence than might be supposed. Oil exposed to the air, as when shavings, waste, or paper are saturated with it, has so powerful an affinity for oxygen that spontaneous combustion frequently takes place. The sulphur for the powder comes from volcanoes; and from this fact it was supposed in ancient times that there was something infernal about it. The last material is the nitrate of potash, or saltpetre. The use of this substance in the powder is the generation of a great quantity of gas. The fabrication of powder would be an interesting subject for a whole lecture, but the limit of time only allowed the speaker to note some of the more important points. In France the manufacture of powder had made, in some respects, very little advance. For instance, to this day, it is the habit in the government mills to mix the materials with wooden mortar and pestle. French powder is, on this account, among the very poorest. It is so soft as to crumble at the least touch, and of course is very disagreeable to handle. Austria makes a beautiful powder. Specimens were exhibited, the grains round and smooth, like shot. Many and very beautiful experiments have been made to determine the rapidity with which powder burns; a very important fact to learn, as different uses require different degrees of rapidity in combustion.

The results of combustion are very curious. Heat is produced, and an immense quantity of gas, at a pressure known in some instances to be as high as 4,000 atmospheres, 60,000 pounds to the square inch. In a vacuum the burning is very slow and requires a perceptible time, the pressure of the air being necessary for the rapid and violent combustion. A small quantity of powder was placed in a small tumbler of platinum and suspended in an exhausted receiver. The thimble or crucible was then made hot by an electric discharge, when the powder slowly took fire and burnt with a greenish blue flame, spitting once or twice, but so quietly that no noise could be heard. Gun Cotton, ignited under the same conditions, slowly turned black and disappeared in a cloud, without the least particle of visible fire or light.

It is very easy in a vacuum to ascertain the changes which take place when powder is burned. Nitrate of potash is decomposed, and we have carbonic oxide, sulphide of potassium, and nitrogen. Under pressure, however, the compounds are very different, and almost nothing is known of what really takes place. If we suppose that the powder has absorbed water, which is very probable, almost numberless compounds may be formed. The formulas of a great number were then put upon the black-board by the lecturer.

In firing cannon, the government rule is that the shot shall just touch the powder, and no more; as it has been found that the effect of the powder is wonderfully increased when the shot is driven down sharply, so as to compress the charge, and the effect of this increase was feared. On this account it was ordered that the shot should merely touch; but further experiments prove that when gunpowder is compressed, the ball is sent with more speed, while the strain on the gun is diminished materially. With an elongated charge of condensed powder—an air space being left all around the charge in the box—it is found that the strain upon walls of the gun can be reduced from twenty-five to fifty per cent, while at the same time the initial velocity of the ball is increased. These effects increase with the amount of condensation, till a maximum in velocity and a minimum in the strain are reached. This is of great value to all using powder, as it enables them to produce the precise effect which they wish. The condensed powder has various other advantages which were then mentioned. A thousand of these elongated charges of condensed powder have been fired from a French gun without swabbing. This number of charges is usually considered a gun's life-time; but, as far as could be seen, the gun was safe to blast as many more.

This condensed powder is sometimes made in the form of hollow rods, which are very convenient for blasting, as any number can be put into the hole till the charge is sufficient. These rods are used to a great extent in the tunnel under Mount Cenis, where they are found to be more economical than powder in the ratio of five to eight.

Gun-cotton was the next topic taken up. This substance is found by the action of a mixture of strong nitric and sulphuric acids upon cotton, or in fact upon starch, fine sawdust, flax, paper, and a great number of similar substances, from which we may obtain, not strictly gun-cotton, but gun-starch, gun-sugar, gun-paper, gun-flax, etc. Pyroxaline is the name given to all these substances, they being the same in chemical composition. Cotton cloth can be so treated that the moment the hot iron of the laundress touches it, it shall vanish in a flame. This gun-cotton is much more powerful than powder, but the uncertainty of composition makes it of little use for military purposes.

Owing to the fact that the nitrate of potash, used for gunpowder, is to be had in great quantities from India only, attempts have been made to obtain a substitute. The French chemists proposed the chlorate of potash; but it was found on trial to be too easily exploded, friction and even a jar being sufficient. During the rebellion, an attempt was made to take advantage of its superior explosive qualities by moistening the cartridges with a solution of this salt. It was speedily abandoned on account of the danger attending it, but before the cartridges so made could be destroyed, seventeen persons lost their lives by explosions among them.

Another expedient was to produce an artificial supply of the nitrate. This was much more successful, as the extensive European nitre beds show. Col. Hazard, (a most appro-

priate name for a powder maker!) advised that this government should import in time of peace, and keep constantly on hand in the interior of the country, thousands of tons of the nitrate of potash, in order to have an accessible supply in case of a war with any power controlling the supply of this article. The next division of the subject was liquid explosions. First in rank among these stands the famous nitro-glycerine, a substance prepared in a manner very similar to that by which gun-cotton is made. Glycerine, the pleasant oily sweet liquid used so extensively as a toilet article, is the base from which this explosive material is made—the only difference in composition being that an atom of water is replaced by an atom of nitric acid. Several experiments were there performed with the nitro-glycerine, showing that, properly used, it was not so dangerous as its misuse has led us to suppose. Experiments were there narrated, going to show that it was reasonably safe in vessels of all the common metals except iron and tin combined, which would invariably produce decomposition of the material and an explosion sooner or later. This, the speaker thought, was the secret of many of the fearful explosions. The nitro-glycerine has almost invariably been stored in tin cans (of sheet-iron covered with a thin coating of tin,) where it was scarcely possible that the liquid should not come in contact with both metals. The speaker thought the government should prohibit the transportation, or storing of nitro-glycerine in tin vessels.

Water was alluded to as an explosive agent, especially when very hot or very cold—frozen or in steam boilers. The "spheroidal state" would probably account for a part of the explosions, but a large part are still involved in mystery. A tallow candle might be made explosive by allowing the gas from the glowing wick to be suddenly ignited. This was shown by plunging a smoking candle into a jar of oxygen gas where the candle was lighted from a spark remaining in the wick and the smoke exploded with a slight report. The explosive mixtures of different gases formed the next department of the subject. The gases were capable of forming the most explosive of all compounds. Some examples were then shown of the power with which common street gas explodes when mixed with oxygen. Some hints in regard to seeking for leaks in gas-pipes were then given, and it was strongly urged that the sense of smell should be the chief dependence. The methods of producing explosives were enumerated, as friction, heat, electricity, chemical action, etc. The lecture was listened to by a large and select audience who greeted the speaker with frequent applause.—*Eng. and Min. Jour.*

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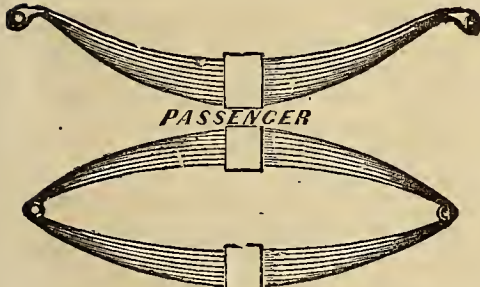
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Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS, (Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.48 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.21 P. M.; Ravenna, 5.05 P. M.; Meadville, 7.55 P. M. (Supper); Susquehanna, 8.10 A. M. (Breakfast); Turner's, 2.07 P. M. (Dine); New York, 4.10 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS, daily. Arrives Dayton, 12.01 A. M.; Urbana, 1.26 A. M.; Galion, 4.00 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.56 A. M. (Bkfst); Akron, 7.33 A. M.; Ravenna, 8.20 A. M.; Meadville, 11.16 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.10 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through
And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUCK,

General Southern Agent.

WM. R. BARR,

Gen'l Pass'r Ag't

Best Route to St. Louis and Chicago

**INDIANAPOLIS,
CINCINNATI
—AND—
LAFAYETTE RAILROAD**

Great Through Passenger Route from CINCINNATI to

**ST. LOUIS,
CAIRO,
CHICAGO,**

Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	9.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.00 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)...	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:40 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo... 7:15 A. M.	5:40 P. M.	
Springfield Accommodation.....	2:30 P. M.	10:25 A. M.
Sandusky, Cleveland & Buffalo, 6:30 P. M.	10:30 A. M.	
Muncie & Indianapolis....	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond... 7:15 A. M.	10:25 P. M.	
do do do	5:50 P. M.	11:20 P. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do	6:50 A. M.	

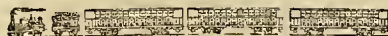
Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at travel office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omnibuses call for passengers

The Old And Reliable Route.



Through to Pittsburgh without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburgh, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Dept. Covington, Ky.

SAM'L GILL, Gen'l Supt. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Essex with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stepping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Old Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburgh, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburgh, and the West—connects at Harrisburg with train for Williamsport, Erie &c

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:20, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.; 12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MAY 12, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
" column, single insertion.....	7 00
" " per month.....	14 00
" " six months.....	35 00
" " per annum.....	110 00
" page, single insertion.....	25 00
" " per m. ch.....	40 00
" " six months.....	135 00
" " per annum.....	240 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'r's.

Commerce of the United States—Internal and External.

In considering the railroad system of this country, and the extent to which it may be carried, one of the great elements (and the greatest), is the aggregate commerce of the country. This, again, embraces three elements: 1. The ocean commerce. 2. The river and coast commerce. And 3, The railroad commerce. The first only is external; both the last are internal. The whole foreign commerce is included in the first. If we were to look only at Congress and the newspapers, we should think that foreign commerce was the only part of commerce really worth anything. We can not tell the exact proportion, and probably there are no data to fix the proportion; but we venture to say, without fear of contradiction from any intelligent man, that the whole amount of our foreign commerce does not exceed an eighth part of that of internal commerce. We stated the other day, that the trade of the Ohio river alone amounted to over six hundred millions of dollars; and that can not amount to more than a fifth part of all the rivers, bays, lakes and coast of the United States. Yet, in Congress and the great cities, we hear but little discussion in the wants of internal commerce, and very much on tariffs and foreign trade, and foreign interests.

It seems impossible for the Government to get out of the clutches of foreign agents and foreign traders. The great bulk of all our Government has to do—or rather what it

ought to do—consists in legislating for internal commerce and internal improvements; yet, in fact, Congress is legislating for foreign interests and foreign commerce. We shall examine, as far as possible, some of the relations of foreign to domestic commerce; and, in order to do this, we will first look into the statistics of our foreign commerce.

The statistical tables of the Treasury Department show the following amounts and increase of imports and exports (value) for half a century, from 1820 to 1870:

	Imports.	Exports.
In 1821.....	\$ 41,283,236	\$ 54,149,863
" 1830.....	56,489,441	60,703,651
" 1840.....	88,951,207	120,077,575
" 1850.....	163,186,510	142,423,227
" 1860.....	335,233,232	373,189,274
" 1870, estimated	434,149,923	464,873,309

The figures for 1870 are those for 1869, the reports of three months of 1870 showing that there will be no great difference in the two years.

This table shows that the decennial increase in imports have been, from 1820 to 1870, as follows:

Inc'se of imp. from 1820 to 1830...	37 per ct.
" " 1830 to 1840...	58 "
" " 1840 to 1850...	83 "
" " 1850 to 1860...	106 "
" " 1860 to 1870...	30 "

This is an enormous increase, and far exceeding the rate of increase in population.

The diminished rate since 1860 is due to two new conditions:—the effects of the war and a higher tariff. Undoubtedly the tariff has prevented a part of the importations which would have been made with a low tariff. But what would have been the effect of importing two hundred millions more per annum of foreign merchandise? No one who knows anything of the commercial history of this country can doubt it. The country could not comfortably pay for more than it has received. The consequence would have been that commercial convulsions would have ensued; half the merchants of the country would have become bankrupt, and, after a cold stage of loss, disorder and convulsion, speculation and extravagance would have been again renewed. Whenever the tariff is much reduced, this will be the consequence. The trade of the country will be in a constant intermittent fever. But let us see what we do import.

1. We import a great many articles we do not produce ourselves, and therefore are legitimate objects of foreign trade. Here are some of them:

Coffee.....	243,927,769 lbs	\$22,834,867
Tea.....	47,008,181 "	14,056,678
Sugar.....	1,298,591,717 "	62,492,837
Spices.....	18,172,572 "	1,514,408

Here are foreign products, in value one hundred millions, which, with the exception of some sugar, we do not raise in this coun-

try, and therefore the tax paid on them neither injures or benefits the people. It is properly a revenue tax. But one remark should be made on this—that three-fourths the tax paid on them is paid by farmers and working men, to whom these articles are comforts and necessities of life; while on the other hand, the tax benefits no class of society. It is simply a revenue tax. The tax, however, on foreign manufactures does benefit our own manufactures, and this very fact seems to make some people anxious to repeal the tariff, and as far as it has any effect, takes the bread out of the mouths of their own people. Let us see what this class of importation is:

Iron (of all kinds).....	\$33,090,500
Cotton goods.....	15,696,700
Clothing.....	1,900,000
Flax Manufactures.....	17,055,975
Leather Manufactures.....	8,771,400
Tobacco Manufactures.....	3,796,000
Wool and Woolens.....	42,195,000
Wines and Spirits.....	7,330,000

\$129,924,975

Here are one hundred and thirty millions of dollars of foreign manufactured goods of which there ought to be none imported into this country. Does the reader ask how come they to be imported, when there is now a pretty high tariff? Because American labor is more than double the value of labor in Europe. Let the working-man ask himself whether his labor should be reduced to half price? That is the only question at issue on the subject of the tariff.

We have here shown only what foreign commerce now is, and hope to show hereafter what the internal commerce is, and how it bears on railroads.

Rockport & Northern Central Railroad.

CINCINNATI, O., May 4, 1870.

The Committee appointed in charge of the Rockport Rail Enterprise, desire to lay before you in this form some facts:

The benefits of this proposed road to Cincinnati are important and worthy of earnest consideration. The country it penetrates (South-western Indiana, Western Kentucky and Central Tennessee) is not now reached directly by Cincinnati trade and commerce. Indeed, we can not even compete on equal terms with some other cities for the trade of this country; but with this road can reach it more directly and conveniently than any other city.

This route furnishes a second line of rail to Nashville (if, indeed, we can claim to have one route there), and the South-west, and will establish what we greatly need in that direction—healthy competition in transportation. Besides this, the local trade on the entire line, from the O. & M. Railway to Nashville, is desirable, and can not fail to be a source of revenue and profit to all classes of dealers in Cincinnati.

The Southern connections established by this line, are Owensboro, Greenville, Paducah, Nashville, Memphis, and, in a word, all the South-west.

CONDITIONS OF SUBSCRIPTIONS.

The Indiana friends of the Rockport road now have \$235,000 in tax and subscription on the line of the road. This amount they claim to be able to increase to \$300,000, with our influence and co-operation. They have obtained the right of way on a portion of the line, and are industriously at work to secure this on the whole line, and to increase their donations. All these they propose to donate to Cincinnati if we subscribe \$300,000 of stock—that being the amount deemed necessary, in addition to their donations, to prepare the road-bed for the iron.

The line from Nashville to the Ohio river will be completed during this or early next year. Now, the question is, shall this line be extended to a Cincinnati connection, or shall the trade and travel coming from the South by this line, on reaching the Ohio river, go up or down the river to other competing cities, or shall it have an opportunity and strong inducement to come to Cincinnati by having this line extended to the O. & M. R. R., less than 60 miles?

The ownership and control of the road becomes the property of Cincinnati stockholders on the subscription of \$300,000.

This amount of stock secures to our citizens the charter, right of way, and carries with it all the donations on the line. With our aid, these donations can be greatly increased. The people of Indiana make their subscriptions donations; while ours will be stock, thus securing to us all we can ask as to the ownership and control of the road.

But what is far better than the ownership of a railroad, we can, by this line, reasonably expect to control the trade and commerce of a wide and wealthy district of country from which we now derive but little trade.

To secure the tax now voted by the counties in Indiana, the officers of the road must, at the June session of the Commissioners' Court, furnish an exhibit of the condition of the Company, that the Commissioners may levy the tax at that session. Hence, there is great necessity for prompt action on our part to secure this tax.

The officers of the road have certainly manifested great energy and industry in their work, and have sought aid of Cincinnati, and Cincinnati alone.

In this they have represented the feeling and sympathy there is between this country and Cincinnati, and the disposition of the people there to deal here if they only have an opportunity.

It is for us to say whether they shall have this opportunity or not.

This enterprise makes a strong appeal to all our leading citizens, real estate owners, jobbers, manufacturers, and especially to the tobacco interest.

For years our people have talked and written of the value of Southern trade, and of the importance of additional railroad lines South. Here is an enterprise offered us on favorable terms, and for a small outlay, that is a South-western route, short, direct and cheap. It is not presented as a substitute for any other of our proposed lines, but is, in itself, a valuable Southern route.

We ask your hearty and prompt co-operation in this enterprise. It has been before the Chamber of Commerce and Board of Trade, and received their endorsement. Now the citizens of Cincinnati are asked to take individual stock to the amount of \$300,000, and thus secure the same amount of dona-

tions, with all the franchises of this proposed road. We hold there should not be a moment's hesitation.

W. H. HARRISON, Pres Canvassing Com.
S. L. CAMPBELL, Secretary.

At the request of the Committee, who are all clever gentlemen, and no doubt believe all they say, we publish the above. But if this road is to be made by, and run in the interests of, Cincinnati, then it should leave the O. & M. road further east than Logoootee. Such a line could be found that would run directly over the coal and iron section of that country, instead of skirting it, as by the Logoootee route. Besides, there would be no more road to build, and we are credibly informed a saving in construction would be had of at least \$300,000, and the whole business of the line would reach this city by less miles transit over the O. & M. road, whereby a large saving in freight and passenger fares would be secured in perpetuity, and the construction of a costly bridge over White river would be dispensed with.

Such a route would approximate as nearly a Cincinnati interest as it is possible to make in that section of the country, and be the very best line that could be found—cost, business and construction considered—by which the Ohio river, at that point, can be connected with the O. & M. road.

The Logoootee route is, as we first announced, a Chicago one, and will be worked in the interests of that city, as much or more than in our's, even though *Cincinnati capital* builds it.

The projectors of the scheme, so considered and argued the merits of the undertaking, upon the facts that it had a Chicago as well as a Cincinnati direction, and would therefore be supplied with business by both these places.

They have displayed this idea in the management of the road thus far. Their local subscription is taken to be given to any company that will complete the work, and it was urged to the people in the stock canvass that if Cincinnati would not build it, a Northern company would, and thus they had two strings to their bow.

Now, if the Rockport people are in good faith with our citizens, let them give the line a Cincinnati leaning at least, if not in the way we have suggested, in some other equally good, or better if it can be found, and to do this right, let a competent engineer be employed, who is free from local interests and influences, examine these lines, make the necessary estimates of the cost of the work upon each, the cost of the right of way, as well as of securing a charter from Kentucky to construct a bridge across the Ohio, and the cost of such a structure; we shall then, and not until then, know what it will cost our people to reach Owensboro, Kentucky, and treat this subject intelligently.

New Schemes in Ohio.

There are very active movements in railroads in the interior of the State. The prospects for a new outlet to the sea, via the Chesapeake & Ohio road, has stimulated the projection of new lines and the revival of old ones, that for the want of connection, or because of the success of some rival route, has lain dormant for years.

Such a line is the Hillsboro and Piqueton road, recently struck to death by an act of the Legislature, that took it out of the hands of the B. & O. Company, and now reorganized under the laws of the State, and in the hands of a most energetic set of men, who are bound to push it through.

Recently a very large meeting was held at Hillsboro, for the purpose of completing this organization and receiving a public expression in its support, that was one of the most satisfactory gatherings of the people, for such a purpose, ever had in that part of the country. They are terribly in earnest, and if properly directed, will undoubtedly secure their wishes in this matter.

A new project, prompted by this same outlet, is the Portsmouth and Cincinnati road, better known, probably, as the inland line, in contradistinction to a contemplated route from and to the same termini via the bank of the Ohio river.

A committee of able men interested in this work met in this city, a short time since, and selected an engineer to make a survey and estimate of it.

That work is now going on with rapidity, and will soon be completed and the results given to the people.

We understand a most satisfactory line has been found through that part of the country that was supposed the most difficult on the whole route, and that there is every reason to believe a cheap line, and one of easy grades, will be obtained.

The local interest upon this route is very large, the people are pecuniarily able, and will assist in the construction of this road to a very great extent. They are all alive to their interest, and well posted as to the benefits they will receive if this road is made.

The route is a good one, the country full of resources, under good culture, and we are glad to say sustaining an enterprising and intelligent population.

Another scheme concocted to reach this new route to the sea, is a road from Columbus to Portsmouth or Ironton.

The engineers are upon this line, and assure us that an excellent route will be found.

And still another, from Toledo to the Ohio river. The work upon this road, from Bucyrus to Athens, has been going on so quietly that we have heard little or nothing about it; yet so energetically, that on the 5th of this month it was placed under contract (180 miles), and will go ahead to completion with

the same celerity with which it was organized and surveyed.

There are incipient railway movements in the Stillwater Valley that indicate the spirit that will build such works. The popular mind is alive, in that part of the country, to the value of connection with the rest of the world, and as that country is of the very best in Ohio, thickly populated, and possessing more than the average wealth of the State, there is no reason why it may not enjoy what it is seeking in the way of public improvements.

At the present railroad *momentum* in Ohio, five years more will add largely to these great thoroughfares, and correspondingly to our wealth, power and influence.

How much of this will Cincinnati receive? She is contributing nothing to these works, and the most of them are to supply competing points. "As ye sow, so shall ye reap."

Pittsburg and Continental Railroad Co.

Some time since, we called attention to the organization of this company, and announced that the line was being surveyed with great rapidity, and also spoke of the three routes that were under consideration. Since then we have heard nothing more of this project, until a day or two ago, when we learned from the press of the State along the central contemplated line, that the surveys are being made, and that the managers of the work are confident of being able to put it through.

We look upon this project as one of great value, and if judiciously located (the central line being our choice), economically constructed, and making the connections east and west it ought to, there is no reason why it should not be a paying road.

The Marion *Mirror* gives the result of an interview with one of the leading spirits in this undertaking, and claims that it is being carried on under the auspices of one of the great East and West companies. It urges the people of Marion, Hancock, Auglaize and Mercer counties to recognize this movement in good faith, and to arouse to the importance of the central route which passes through Findlay, Wapakonetta, St. Mary's and Celina, and not to lose their natural advantages by indifference.

This is all very well; but if the Marion *Mirror* would disclose, if it knows, what we confess, that thus far we have failed to ascertain, viz.: whether this is an independent organization without support from the great East and West Company hinted at, but hoped for, or the work directly of such a company, more good faith can be aroused, and more aid obtained, than otherwise.

We know the people well through part of this section of country, and know their anxiety for such a road as this would be, and the zeal with which they would contribute to it;

but they have been the victims of several unfortunate schemes, and therefore demand a very clear exhibit before they bite again.

We shall be pleased to receive any reliable intelligence of this project, and if it commends itself to our approval, we will cheerfully give it our support.

Knickerbocker Life Insurance Company.

We have just concluded a careful examination of the status of seventy-two leading Life Assurance Companies in the United States, up to January 1st, 1870. They nearly all exhibit a most remarkable degree of prosperity, and prove that they are doing an enormous business, upon such correct principles that they may be regarded as among the safest institutions in the world.

The vigorous competition between these companies we feared would force a violation of the scientific principles that time and experience have determined requisite for success, but we are inclined to the belief that it has compelled a stricter observance of them by all companies of real strength and respectability; and this, indeed, may be the secret of the wonderful growth, and yet the prosperity of, *all* these leading organizations.

The field of operation is a very extensive one, and from present indications this year, promises a large ratio of increased business to these leading companies over that of the average yearly business for the past decade.

Of the seventy-two companies of which we speak, we give the status of the Knickerbocker, of New York, which is certainly most satisfactory to policy holders, and must commend it to the public as worthy of the highest confidence:

Policies in force Jan. 1, 1870.....	22,078
Amount insured.....	\$68,569,268
Total premiums, 1869.....	4,599,945
Interest receipts, 1869.....	441,979
Gross income, 1869.....	5,041,924
Losses paid.....	811,288
Dividends to policy holders.....	493,411
Gross assets Jan. 1, 1870.....	6,680,906
Total liabilities exclusive of capital stock.....	5,328,728
Ratio of expenses to income.....	14.52
" " " premiums..	15.92
Rates of losses paid in 1869 to mean amount of risk.....	1.23

The Knickerbocker has been a favorite company in Ohio, and we understand its business from this State promises to increase this year upwards of \$3,000,000. If anything like the same proportion of prosperity is had elsewhere, the year of grace, 1871, will place this company in the lead of Life Assurance in America.

The Oregon & California R. R. has mortgaged its lands, rolling stock, etc. The stamp on the mortgage amounted to \$14,795.

WASHINGTON, May 5.—A number of Boston capitalists, who are now building a railroad through Central Alabama, called on Senator Sherman to-day, and informed him that if his bill now pending in the Senate for a railroad from Cincinnati to Chattanooga was passed, they would undertake the construction of the road.—*Ctu. Com* of May 6th.

That would be *true* benevolence. The Stanton, *it ed omne genus*, will at any time build the Southern road for Cincinnati, and *run and own it for her*, conditioned *only* that she will furnish them the money to do it with. They have done "just so" with Alabama, and have "licked their chops" on several occasions as a preparatory process for swallowing the "trust fund" of "ten millions," but somehow or other it did not seem to be exactly ready for deglutition. It is a great pity the Trustees can not "see it" as the cod fish mongers "see it." When Cincinnati needs "benevolence" she will not go to that market to procure it.

Could not they induce Senator Sherman to introduce a clause in the bill *compelling* the "Five Trustees" to recognize their claim and forcing them to "fork over." If they could *only do that*, they need not wait for further legislation. They are aware, and every body knows it, that there are a dozen charters, as liberal as can be drawn, already granted by Kentucky. "Shoo fly!"

CORRECTION.—In our last issue we spoke of Mr. Clough, in a note of his silver-wedding celebration, as the General Agent of the Erie road. This was an error that we now take pleasure in correcting. Mr. W. H. Tennis occupies that position. Mr. Clough's connection is with the C., H. & D. road.

—The forty-third annual report of the Baltimore and Ohio Railroad Company shows that for 1869 the gross earnings of the Main Stem and all branches were \$9,676,873. Of this \$536,033 was earned by the Parkersburg Branch, and \$415,294 by the Washington. On the main stem the earnings were divided thus: passengers \$1,246,919, tonnage \$7,477,996. On the Parkersburg Branch thus: passengers \$101,145, tonnage \$434,887. On the Washington Branch thus: passengers \$329,797, tonnage \$86,126. Total: passengers \$1,677,862, tonnage \$7,999,011. The aggregate expenses of operating and repairs were \$6,589,127, and the net profit \$3,087,745. This is an increase of profit over last year of \$395,639. A dividend of four per cent. on the capital was paid in October, 1868, and another in April, 1869. The expenditures on the bridges at Bellaire and Parkersburg during the year were \$647,745.

The New York Central is reported to the State Engineer as 593½ miles long, and as having cost to construct it \$37,603,696; this cost is represented by capital stock \$28,795,000, and \$11,398,425 of bonds, with a total earning of \$15,586,616. The working expenses were \$9,055,485, or a trifle less than 60 per cent. of gross earnings; and after paying \$894,729 interest on their bonded debt, they had a surplus of \$4,335,804 for dividends on their stock and script stock.

Cleveland, Columbus, Cincinnati, and Indianapolis R. R.

The annual report for the year ending Dec. 31, 1869, shows that the earnings have been as follows:

From passengers	\$840,773 54
From freight.....	2,090,542 76
From express.....	85,562 61
From mail.....	61,993 00
From rents.....	49,304 57
From interest and dividends.....	14,019 15
From miscellaneous sources.....	694 28
	<u>\$3,142,889 91</u>

Ordinary exp. for operating the railway during the year were	2,014,855 13
	<u>\$1,128,034 78</u>

National, State, and Municipal Taxes..	\$170,887 17
Interest on bonds...	151,701 21
	<u>322,588 28</u>

Net earnings—	\$805,446 40
Out of which Dividends have been paid—	
August 1, 1869, 3½ per cent.....	\$365,939 00
February 1, 1870, 3½ per cent.....	365,984 20
	<u>731,823 50</u>

Leaving a surplus for the year of....	\$73,522 90
Add surplus as per ledger.....	225,024 50
	<u>\$298,247 40</u>

Less discount on bonds sold.....	146,200, 00
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Surplus January 1, 1870	\$152,347 40
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The assets and liabilities of the company, as shown on its books, are as follows:

ASSETS.

Cost of road, depots and equipment.....	\$12,160,636 77
Materials on hand—	
For repairs of track and fences	\$134,551 37
For repairs of cars and engines	146,713 42
Fuel, oil and waste	124,358 50
	<u>405,623 29</u>

Cash and Cash Assets—	
Cash in hands of Treasurer	806,770 19
Due from agents ...	24,941 34
Due from other companies.....	71,711 59
Due from Post Office Department...	8,543 53
	<u>929,966 65</u>

Other Assets—	
Indianapolis & St. Louis R. R. Stock	300,000, 00
Indianapolis & St. Louis R. R. Bonds	150,000 00
Indianapolis & St. Louis R. R. Trustees	73,998 40
Pitts'bg, Ft. Wayne & Chicago R. R. Stock.....	52,800, 00
Sciota & Hocking Valley R. R. Bonds	2,000 00

Real Estate not used for roads and depots	26,771 14
Wood lands.....	45,364 06
Pendleton Stone Quarry	4,915 46
Bills receivable	11,971 13
Insurance Scrip	185 00
	<u>668,005 19</u>
	<u>\$14,164,231 90</u>

LIABILITIES.

Capital stock.....	11,620,000 00
Less amount owned and held by this Company	1,159,100 00
	<u>\$10,460,900 00</u>
C. C. & C. R. R. mortgage bonds (\$25,000 falling due each year)	365,000 00
B & I R. R. 1st mortgage bonds (old), past due.....	2,000 00
B & I R. R. 1st mortgage bonds, average \$25,000 falling due annually†	718,000 00
B & I R. R. 2d mortgage bonds due April 1, 1870	14,000 00
B. & I R. R. income bonds, due Feb. 1, 1870*	40,500 00
1. P. & C. R. R. 1st mortgage bonds, due Jan. 1, 1870*.....	232,000 00
1. P. & C. R. R. 2d mortgage bonds, due Oct. 1, 1870	176,500 00
C. C. & I. Railway 1st mortgage sinking fund bonds	1,637,000 00
Dividend No. 4, payable Feb. 1, 1870	365,984 50
Surplus earnings.....	152,347 40
	<u>\$14,164,231 90</u>

† \$37,000 of these bonds have been paid since Dec. 31.

* Nearly all of these bonds were presented and paid at maturity.

By reference to the report of the Superintendent, and detailed statements herewith, the following comparative exhibit is obtained:

Total tonnage moved in 1869	825,464 1710-2000 tons.
Total tonnage moved in 1868	628,356 1945-2000 tons.

Increase, 31½ per cent. 197,108	665-2000 tons
Total earnings from freight transportation in 1869	\$2,090,542 76
Total earnings from freight transportation in 1868	1,843,129 82

Increase, 13 4-10 per cent	\$247,412 94
----------------------------------	--------------

This great difference in percentage of tonnage and earnings, is largely owing to the severe competition of Eastern Trunk Lines in their efforts to control the Western bound traffic of the country, resulting in a reduction of rates of transportation, for a large part of the year, below the *minimum* necessary to produce sufficient revenue to meet the proper cost of moving such tonnage.

It is hoped that the great East and West lines may hereafter so far agree as to prevent improper rivalries, and maintain an effective co operation for the benefit of all the great interests involved.

The Indianapolis and St. Louis Railroad Company (of which this company owns one half the share capital) is progressing very satisfactorily with the work of the construction of their road between Indianapolis and Terre Haute. At the latter point it connects with the St. Louis, Alton and Terre Haute Railroad,

of which it is the lessee. Thirty miles of track are already laid, and the grading so far advanced on the remainder of the line as to permit the resumption of track-laying in March. The whole road will be completed and opened for business by the first of July next, giving this road a permanent and satisfactory thorough line to St. Louis.

In pursuance of authority given by the stockholders, your Board have caused to be executed Three Million Dollars of First Mortgage Sinking Fund Coupon Bonds, eight hundred thousand dollars to be used in aiding the Indianapolis and St. Louis Railroad Company in building their road, the remainder to be used in retiring the bonds of different dates issued by the Cleveland, Columbus and Cincinnati R. R. Co., the Bellefontaine and Indiana R. R. Co., and the Indianapolis, Pittsburg and Cleveland R. R. Co., which companies, by consolidation, form the present company.

This mortgage will represent the entire debt of the company, after retiring the bonds referred to.

American Bonds in Europe.

At the commencement of our civil war, a leading organ of public opinion in England announced that the United States Government would be compelled to carry on the struggle without the aid of English capital. Since that period a very great change has occurred in the financial credit of our Government and people. At the present time fully one-half of the United States bonded debt, interest payable in coin, is held in Europe. This proportion is rapidly increasing. American bonds are in request in Europe, and almost every foreign steamer takes out more or less of our bonds. They appear to be chiefly taken for investment. This is more particularly the case in Germany, where there are comparatively few of our securities in the hands of speculators or capitalists. Of the total amount of the foreign bonded debt of the United States, it is estimated that fully one-half, or \$500,000,000, are held in Germany. In England a large amount is held in bankers' hands for sake of the interest. It seems singular, in view of the close commercial relations between the United States and England, that our bonds should not be more in request in that country. But this seems to be a result of the sentiments engendered by the civil war.

But American corporate bonds are now finding their way into England much faster than is generally supposed. American bonds to an aggregate amount of \$20,000,000 have recently been thrown upon the London market. Of these we notice as the prominent, the first mortgage bonds of the Illinois and St. Louis Bridge Company. The loan is for \$4,000,000, interest in coin at 7 per cent, and payable in London or New York. Next, we find the bonds of the Indianapolis, Bloomington and Western Railroad of Illinois and Indiana. The loan is for \$5,000,000, at 7 per cent. interest in coin, secured by first mortgage on the line. Then we find the East Tennessee, Virginia and Georgia Railroad Company, offering first mortgage bonds to the amount of \$3,000,000, interest at 6 per cent. These are only the more recent loans offered in London. The amount offered since the commencement of the present year reaches a total of not less than from \$50,000,000 to \$70,000,000.

From the terms of these loans we may form an approximate idea of the probabilities of Mr. Boutwell's success in floating his new bonds at par, at 4@5 per cent. interest.

Scarcely any of the railroad or other bonds are offered at less than 6 per cent., the majority being at seven per cent., and none of them at par. In the case of the 6 per cent. mortgage bonds of the East Tennessee Railroad, the security offered is extraordinarily good. But even these are offered at a heavy discount. \$1,000 bonds of £200 each are offered at £82 10s. per £100 sterling. The 6 per cent. St. Louis bridge and Indianapolis Railroad bonds are offered, respectively, at a discount of £180 and £164 for each £200 in bond. In Germany and in England, Pacific Railroad and other bonds have been thrown on the market since January last, to the amount of not less than \$100,000,000.

When we find that private corporations can not, in the present exceedingly easy state of the London money market, obtain loans even at par even at 6 and 7 per cent. without a considerable discount, there appears to be very little prospect of the success of Mr. Boutwell's scheme of selling his 4@4½ per cent. bonds at par. But, it may be said, "The credit of the United States Government is far better than that of private or public corporations." But this superiority of the national credit is more apparent than real. National credit counts for very little in itself. In the case of the railroad first mortgage bonds, there are numerous reasons why they should be regarded with more favor by capitalists. They represent actual value, and can be attached and foreclosed in case of nonpayment. But Government bonds are not productive or valuable in the same sense as railroad securities. They represent property destroyed and not yet paid for, and in case of non-payment, the creditors have absolutely no redress. Of course, the promise of the United States Government is or ought to be unimpeachable. But when it comes into the market for money it must go through the same ordeal as other borrowers.

There is an important feature connected with the increasing foreign indebtedness of the United States that demands serious consideration. At the present time it takes about \$90,000,000 a year in coin, to pay the interest of the debt held in Europe. Of \$24,350,456 of the May dividends it is estimated that \$15,000,000 or nearly two-thirds goes abroad. The total foreign drain on account of interest is more likely to increase than diminish. So far as this foreign outflow represents profits on capital actually invested in reproductive pursuits, it is decidedly beneficial to the United States.—*Economist*

SUBMARINE LAMPS.—A submarine lamp has recently been seen in operation in the Seine. It appears to be an ordinary oil lamp, provided with a copper reservoir, in which oxygen has been compressed to the extent of ten atmospheres. We have no information as to the means of getting rid of the products of combustion, but we read that the lamp burnt under the water for an hour and forty minutes. The invention we speak of is not new, and was mentioned in our columns some two years ago; but since it has been brought under our notice we mention it again, having in mind the importance of a lamp of the kind in diving operations, and the value of it in some fisheries. With regard to diving operations, we may remark that the lamp of Mr. Fanshawe would seem particularly adapted for the purpose. It has been supplied with air by pumping, but since the diver must also be furnished with air, the pumps might be constructed to supply both the diver and the lamp.—*Mechanics' Magazine.*

The Tide Theory of Earthquakes.

Rudolf Falb, an astronomer of considerable experience and reputation, and editor of the astronomical journal called the *Sirius*, published at Gratz, in Styria, issued last year a work entitled "Fundamental Principles of a Theory of Earthquakes," which created quite a panic in South America, on account of the unpleasant certainty with which it ventured to predict the recurrence of such catastrophes as that which had devastated Chili and Peru but a short time before. We condense from a review in the *European Mail* the substance of his theory, which, it must be admitted, is not wholly unreasonable in itself, and is supported by an array of historico-astronomical calculations which, even if erroneous, can only be refuted by some other equally patient and laborious investigator—we had almost said by some other German. The author first explains the power and magnitude of the attraction exercised both by the sun and the moon, and how they act under certain circumstances either in the same direction or antagonistically, according to their relative positions at the time of the new and the full moon; for the moon, though of infinitely smaller volume than the sun, plays a much more important part in attracting the waters of our oceans, from being so much nearer to us than the sun. The greatest amount of attraction is exercised on our waters when the sun and the moon are both pulling in the same direction, and when the moon is in her perigee or the point of her orbit nearest to the earth, which is the case at the period of the new moon. Were the oceans covered by a substance of moderate thickness—say of ice—the reaction of the water caused by pressure from being drawn up into a temporary heap by the attraction of the moon passing over it, would be so powerful as to break it up into innumerable small pieces. This may, indeed, have been one cause of the many ruptures in the earth's surface which we witness every day, in all parts of the globe. The author gives a list of the nine principal combinations of force with the moon in perigee or closest proximity to the earth, and the various positions of our globe in reference to the sun; for the moon is at some periods considerably nearer than at others, which of course makes a difference in her power of attraction. Bessel's calculation is, that the distance of the moon in her apogee is 54,681 German miles, and in her perigee only 48,020, thus showing a periodical difference of 6,661 German, or about 30,000 English miles. Herr Falb's theory is, that the attraction of the sun and moon not only exercises an influence on the watery outside covering of our globe, but creates also a tidal wave in the igneous fluid interior, reacting on the inner surface of the crust in the same way as the ocean's surface would react on the supposed covering of ice, and that this causes earthquakes of more or less violence, according to the nature and thickness of the rocks, lifting up the surface as the tidal wave passes underneath, and thus creating the undulatory motion which is the usual characteristic of an earthquake. There must be many places on the surface of our globe where, from various causes, the crust is not so thick as in others, and these are most exposed to the influence of the tidal wave beneath, and consequently most liable to suffer from earthquakes. Moreover, many observations have revealed the fact, that in most cases of earthquake the undulatory motion is from east (subject to some modifications from local and other influences, extending from north-east to south-west) to west, which is precisely the direction it must of necessity take in following the course of the moon. Thus, the great tidal wave that destroyed Arica, on August 13, 1868, traveled in an almost due

westerly direction to Port Lyttleton, in New Zealand.

He argues that the most powerful earthquakes must occur at the new or at the full moon, though they are generally anticipated or retarded for several days, by the various positions of the attracting bodies. This theory lends, perhaps for the first time, scientific authority to the supposition of a connection between earthquakes and eclipses, which has hitherto been rated as a groundless superstition. History furnishes numerous instances of their concurrence. This author shows that there was a total eclipse of the moon at the time of the earthquake which occurred when Julius Cæsar was assassinated, March 15, B. C. 44; and his calculations as to the period of the eclipse and earthquake which attended the Crucifixion add new testimony to that of archaeology, tradition and Biblical criticism, in fixing the date of that event at April 6, A. D. 31. Of more scientific value are his discussions of the recorded earthquakes of the last twenty years; and here the coincidence between the facts, and the calculated results of his theory is quite striking.

It must be confessed, on the other hand, that Herr Falb has made quite as many failures as successes in seismological prophecy. Yet that is not conclusive against his theory. We should remember that, with all our scientific investigations, and our abundant facilities for the study of phenomena, we are still unable to bring the theory of ocean-tides into strict accordance with the observed facts. There are so many factors involved—the shape of the ocean-bed; the contour of coasts; the action of storms, trade-winds, and currents; the accumulated results, impossible to analyze or estimate, of former tides and movements; etc., etc. These things complicate the problem so that we can not yet boast of having given it a complete solution. It is not unreasonable, then, that calculations should fail of absolute accuracy, when applied to a supposed subterranean igneous sea, with its storms and tides, its currents and solid obstructions, all unknown to us.—*Eng. and Min. Journal.*

An old Railroad Abandoned.

On Saturday, the 16th, the last train passed over the Bangor, Oldtown and Milford Railroad, in Maine. This was the second railroad built in New England, the Boston and Lowell having been built a year earlier.

The road was little more than twelve miles in length, and was constructed to connect the great lumber interests of the upper Penobscot with tide water at Bangor. Its projectors struggled to make the road self-sustaining, but finally abandoned the hope, and after a few years sold it to General Samuel Veazie, who was proprietor of valuable manufactories at Oldtown. From that time until one year ago the road had been profitable, and it was one of great benefit to the locality. But the demands of the general railroad system of the State required the surrender of the smaller to the larger enterprise.

When General Veazie purchased the Bangor, Oldtown and Milford Railroad, visions were indulged of a railroad across the wild lands of that section through New Brunswick and Nova Scotia to Halifax, there to intercept the European travel. Another object in view was to open communication with the rich valley of the Aroostook, in northern Maine.

Some fifteen or twenty years ago a company was organized with the view of building another road up the Penobscot, and thence

through the provinces indicated. The company was chartered, the road was graded, bridges were built, and for ten or twelve miles the rails could have been laid with little trouble. But the company failed, and the work was abandoned.

In 1867, the European and North American Railway Company having been organized, with the purpose of extending a road to Halifax, work was begun and has been pushed since then, until only fifty miles now remain unfinished to connect Bangor with St. John N. B. From Bangor to Oldtown this road runs parallel with the old road. And this is why now the Bangor, Oldtown and Milford Railroad is abandoned. The bed of the old road could not be used for the new railway, for the reason that it ran along the high table lands back from the river, and did not approach tide water.

On the first of December last the European and North American Railway Company purchased the Bangor, Oldtown and Milford Railroad of the Veazie heirs—General Veazie, having died two years ago—and the road has since then been but little used. The rails will be taken up, and the rolling stock transferred to the new road.

There is not probably another instance on record of a successful railroad having been abandoned in order to aid another enterprise.

Absurd Inventions.

The nature of some applications for patents at the Patent office in Washington is sometimes amusing by the utter absurdity of the invention claimed, and the continual occurrence of such claims is proof that the price of a patent is low enough. Cheapen it, and their number will increase; raise the price and they will diminish. But in the latter case, real good inventions may also be held back by the inability of the inventor to pay, and perhaps this is even now sometimes the case.

The last curiosity in this line is a marine propeller with the screw in front. Its shaft running back through the vessel, is, by means of a gearing, connected with the cross shaft of the paddle-wheel. To move this machinery, and to keep it going, it is only necessary to start the vessel, and for this purpose masts and sails are used. The vessel once started, the screw will be set in motion, and this will of course turn the paddle wheels, which are geared so as to rotate faster than the vessel progresses. They will thus continue to propel it, while the forward motion keeps the screw revolving. When this point is reached, the sails may be dispensed with, and the only fear of the inventor appears to be, that the vessel may dash on too fast. But then he is equal to the emergency; it is only necessary to disconnect the gearing between screw and wheels, so that they can not help one another any more, and the vessel will stop. This application was to the utter disgust of the inventor, *not granted*. He was confident of success, and as the possibility of obtaining money for making a trial on a large scale depended on the granting of the patent, he accuses the United States Patent Office of preventing him to make his fortune, of being acknowledged the greatest of engineers, of earning honors as the benefactor of the race, etc., etc.

Some time ago, another inventor came to us to obtain our opinion on a plan for propelling vessels by means of hydrogen gas. In the bottom of the vessel was a large air-tight copper tank, filled with zinc or iron scraps; sulphuric acid and water were admitted, and the gas developed under pressure, which then was to be allowed to blow out under the rudder

against a propeller screw, turn this, and so propel the vessel. When we remarked that much more power could be obtained from the gas by exploding it with a mixture of air, than by simply using its weak blowing pressure, the inventor had soon modified his plan accordingly, by adopting a piston motion and crank, to drive the piston and turn the propeller by the explosive mixture. He was bound to make hydrogen propel vessels.

The attempt to run vessels by wind power in any direction and entirely independent of the direction of the wind, has, perhaps, been tried oftener than anything else, in different localities, and still in the very same manner. We refer to the plan of placing a windmill on the deck, and causing this, by means of the proper gearing, to turn paddle-wheels. By entire ignorance of mechanical principles, the fact was overlooked, that the pressure on the axis of a windmill will move the vessel in the direction of the wind with a force always surpassing to a certain extent that, which may be obtained from the rotation of paddle-wheels driven by the mill.—*Eng. and Min. Jour.*

How Phosphorus is Made.

The earthy matter of bones consists of three equivalents of lime united with one equivalent of phosphoric acid. It is what chemists term "a tribasic phosphate of lime." Phosphoric acid consists of one equivalent of phosphorus united with five equivalents of oxygen. In order to obtain the phosphorus, it is only necessary to take away those five equivalents of oxygen, which we can do by mixing the compound with charcoal after some preliminary operations, and heating them together. The charcoal takes away the oxygen and forms carbonic oxide with it, while the phosphorus distills over. In this way we get phosphorus in the condition in which you are very familiar with it. It is a wax-like substance, which must be handled with care, because, if you allow it to dry, the heat of the fingers would be sufficient to inflame it.

Now, observe what this substance looks like. It is semi-transparent; it is soft; you can cut it like wax. It is exceedingly poisonous, and in the making of lucifer matches it is found to be a very insidious poison. Lucifer match-makers are apt at first to be subject to an affection which does not draw much attention. They complain frequently of toothache, but know not the insidious disease which is creeping upon them. The lucifer match makers who make lucifer matches from this phosphorus are subject to the most distressing of all diseases; the jawbone becomes destroyed, and frequently disappears or becomes useless, and some of them spend the greater parts of their lives in the wards of hospitals. It therefore became an important point for science to find some way by which this phosphorus should be deprived of its poisonous properties without losing those chemical characteristics which make it so useful in making matches for instantaneous light.

Professor Schrotter, of Astoria, met this want of science in a very skillful way, as follows: By taking common phosphorus, and exposing it for some time to a temperature of forty-seven degrees, this yellow, waxy, transparent substance transforms into a dark, brick-like substance. It is no longer so inflammable as to ignite spontaneously. It may be packed up in boxes without danger of spontaneous combustion; but what is more important, it has lost all its poisonous properties. The phosphorus, which was poisonous before, is no longer poisonous in this condition, and it is still capable of being used for making lucifer matches.—*Gaslight Jour.*

A CURIOUS SUBSTITUTE FOR CEMETERIES.

The inventive genius of the old world seems to be at work to devise a substitute for cemeteries, by employing some process for treating the dead bodies of departed friends so as to render them excellent specimens of petrification. A foreign cotemporary announces a discovery by which graveyards will become superfluous: "An odd discovery has just been made by a man of Grenoble, by which it is calculated that cemeteries and graveyards will become superfluous. At the decease of an individual, the body is plunged into a liquid invented by the man of Grenoble, and in about five years the individual is turned into stone! The secret of the petrification is known only to the discoverer. He says that in a thousand years' time, if persons will only preserve their relatives and friends, they will be able to build houses with them, and thus live in residences surrounded by their ancestors."

AMERICAN STEEL RAILS.—It is estimated that the new steel rail works in this country will be able to turn out 80,000 tons next year. We have before alluded to the excellent steel made from Lake Superior iron, and several times mentioned the re-building of the Bessemer Steel Works of Messrs. John A. Griswold & Co., at Troy, who made about 2,000 tons of steel rails previous to their loss by fire. Part of the rails they made were laid on the Erie track, and official reports say that not a single bar has yet been broken. The American steel rails can be made equal to, if not actually superior to the best imported, is now generally admitted by competent judges, and we shall soon demonstrate the fact clearly enough to all doubting minds.

NEW SILVER MINES.—There is much talk in San Francisco about the rich mineral deposits said to have been recently discovered in New Mexico, near the boundary line of Arizona Territory and in the heart of the Apache country, where no small party of whites can safely venture, as the Indians are fiercely hostile. The discoverers located their claims about the 1st of February, and gathered up a quantity of silver ore assaying as high as two thousand dollars a ton. The principal "lode" consists of a mass of silver ore 3,600 feet in length, 1,000 feet in width, and projecting 1,000 feet above the level of the surrounding country. The story sounds nicely, but how true it is time will tell.

TRAFFIC IN EUROPE.—The statistics given in a London Journal go to show that England has about 2,500 miles of navigable rivers, 2,800 of canals and 12,000 of railways; France has 1,740 miles of river navigation, 3,700 of canals, and 9,250 of rail; Belgium has 700 miles of river navigation, 900 of canals and 1,400 of rail. The German States have over 5,000 miles of navigable rivers, 600 of canals and about 800 of rail. And yet, it has been asserted that Germany, with its great natural water courses, is not in possession of the best traffic routes on the continent.

—The subscription lists opened in London by J. S. Morgan & Co., for the first mortgage bonds of the Illinois and St. Louis Bridge Company, have been closed, the amount asked for having been successfully negotiated. The bonds are for \$4,000,000 bearing interest at seven per cent. in gold, and are a first lien upon the bridge connecting St. Louis with the various railroad lines concentrating on the Mississippi River opposite the city.

Fresh Garden, Flower, Fruit, Herb, Tree, Shrub and Evergreen Seeds, with directions for culture, prepaid by mail. The most complete and judicious assortment in the country. Agents wanted.

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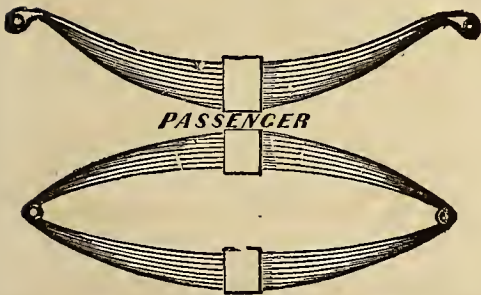
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SEALED PROPOSALS will be received at the Engineer's office at Charleston, W. Va., until 12 M. March 1, 1870, for the GRADUATION, MASONRY and SUPERSTRUCTURE OF BRIDGE on the Chesapeake and Ohio Railroad between the Falls of Kanawha and the Ohio River, including THREE MILLIONS CUBIC YARDS OF EXCAVATION, and SEVENTY THOUSAND CUBIC YARDS OF MASONRY.

Also, at the Engineer's office at Richmond, Va., until 12 M. March 10 1870, for several heavy sections east of the Falls of Kanawha, including the unfinished work near Millboro' and that eight miles east of the White Sulphur Springs the Great Bend tunnel 6,000 feet; Lewis tunnel, 3,800 feet; five other tunnels from 500 to 1,700 feet long; several sections in rock cutting; and about 70,000 cubic yards of masonry.

Profiles and specifications can be found at the office of the company 54 William street New York, on and after February 1; at Richmond, Va. and at Charleston W. Va. on and after January 15, 1870. The company reserves the right to reject any or all the bids offered, and to make private contracts for the work.

Information as to time, etc., will be given at the letting. For further information apply to A. D. Whitcomb, Chief Engineer, Richmond, Va., or to W. A. Kuper, Principal Assistant Engineer, Charleston, West Virginia.
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Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cincinnati time.

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9.45 P. M. LIGHTNING EXPRESS,
daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Gallion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Breakfast); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

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The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through
And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,
Which can be obtained at the Company's Offices in Cincinnati, 20 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

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And all Rail and River Towns and Cities in the West,
North-west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail	7.20 am	12.40 pm
St. Louis and Springfield Express	7.40 pm	7.35 am
St. Louis and Springfield Express	10.20 pm	3.42 pm
Lawrenceburg Accommodation	10.10 am	2.35 pm
Lawrenceburg Accommodation	4.30 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail	7.00 am	10.15 am
Chicago Express	6.50 pm	9.30 pm
Harrisburg Accommodation	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile seaward, the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE
Eastern Express (Erie Railway)	7.40 A. M.	6.30 P. M.
do do do	9.45 P. M.	7.00 A. M.
Toledo, Detroit & Canada	7.15 A. M.	10.25 P. M.
do do do	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago	7.15 A. M.	10.25 P. M.
do do do	2.30 P. M.	5.40 P. M.
do do do	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo	7.15 A. M.	5.40 P. M.
Springfield Accommodation	9.20 P. M.	10.40 A. M.
Sandusky, Cleveland & Buffalo	6.30 P. M.	10.20 A. M.
Nuncio & Indianapolis	7.15 A. M.	10.25 P. M.
do do do	5.00 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond	7.15 A. M.	10.25 P. M.
do do do	5.40 P. M.	10.20 A. M.
Hamilton Accommodation	9.30 A. M.	8.05 A. M.
do do do	6.50 A. M.	

Trains run **SEVEN MINUTES FASTER** than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots, East Front and West Sixth streets.

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	LEAVE.	ARRIVE.
Morning Mail	7.35 A. M.	2.30 P. M.
Evening Express	7.15 P. M.	3.45 P. M.
Night Express	11.15 P. M.	5.00 A. M.
Walton Accommodation	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House or Depot, Covington, Ky.

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CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6.55 a. m.—For Easton, Bethlehem, Manahunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.

7.15 a. m.—For Somerville.

8.30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Luzon, Pottsville, Scranton, Harrisburg, &c.

3.30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4.30 p. m.—For Somerville.

5.25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7.20 p. m.—**EMIGRANT**—Stopping only at the principal stations.

9.00 p. m.—For Plainfield.

11.50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—**WESTERN EXPRESS**, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—**CINCINNATI EXPRESS**, daily, (except Saturdays,) for Easton Bethlehem Allentown, Reading, Harrisburg, Pittsburgh, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—**WESTERN EXPRESS TRAIN**, daily, for Easton Allentown, Reading, Harrisburg, Pittsburgh, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5.45, 6.30, 6.55, 7.15, 8.15, 8.30, 9.20, 10.30, 11.40 a. m.—12 m., 1.00, 2.10, 3.00, 3.30, 3.45, 4.15, 4.30, 4.45, 5.10, 5.25, 5.45, 6.00, 6.25, 7.40, 7.50, 8.00, 9.00, 9.40, 10.45, 11.50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICEK, Superintendent.
H. P. BALDWIN, Gen. Pass. Ag't.

E. D. MANSFIELD, } Editors
T. WRIGHTSON, }
W. A. MUNSELL, Associate Editor.

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WRIGHTSON & CO., Propr's.

On the 4th of May, that part of the Toledo & Pomeroy road which lies between Bucyrus (Crawford county) and the north line of Athens county, was put under contract to Huston & Co., to be completed at an early day. The distance is 118 miles and is more than half the whole distance. The northern part, from Bucyrus to Toledo it is presumed there will be no difficulty with, as Toledo has much public spirit, and this road will be of immense advantage to her. The southern end of the line, in Athens and Meigs county can not fail, since such an outlet to the coal region is of incalculable value to it. In passing from Athens through Perry county, the road will not go through Straitsville, because Straitsville is on the western edge of the great coal deposit. It will pass from Athens through the main branch of Sunday creek, the very core of the best and greatest deposit of coal in the State of Ohio.

Up Sunday creek it will pass to New Lexington; thence to Graunville (Licking county); thence to Mount Gilead (Morrow county), Bucyrus, Fostoria and Toledo. This road will have one advantage over any other road in the State. It will not go in the same direction with any other, but, on the contrary, cross all the main lines nearly at right angles. This is a great advantage, and promises at the very outset to make this a profitable road.

of Cincinnati, is the manner of doing this work. The large subscription necessary to put this work under contract was obtained without the aid of any railroad company, or railroad men; without any municipal subscriptions, or bankers, or newspaper puffing. How then was it done? Solely by private effort, or rather the effort of citizens on the line of the road. By appointing committees in every township on the road, and applying directly to the interest of village and farmer, enough has been subscribed to make a reasonable margin and foundation for the whole work.

Now this example is worthy both of consideration and imitation. If this work can be done in the agricultural and less populous counties of the interior, then it can be done in the rich counties on the Miami; and if it be not done, we may fairly presume the people are not much in earnest, in wanting the work.

Take, for example, a connection with the Chesapeake & Ohio Railroad. Beginning at Cincinnati, which assuredly is rich enough to help her end of the road, we have the counties of Clermont, Brown, (or Highland) Adams, Scioto, (or Pike) and Lawrence (or Jackson). There will be six counties (on an average the richest in Ohio) to make 125 miles of railroad.

Suppose another case, that of the Southern Railroad. If the city does not choose (as recommended by Mayor Torrence) to avail itself of any railroad charter in Kentucky, then let the citizens subscribe two millions, (and that is enough) and the Southern road will be made. We give these as examples of what may be done. All these modes of action will no doubt be discussed. We can here only give the mode adopted in the Toledo & Pomeroy Railroad, as one which may be adopted with success.

The Hocking Valley Railroad is another, which is actually made, and in a large degree on the same principle. No subscription was or could be made. The stock subscription was obtained on the line of the road. When there is enough to grade the road, the money holders will always advance the residue on mortgage. This will be the case on other roads.

Another new line proposed is the straight line from Springfield to Cincinnati. There is no doubt, this is a desideratum, for this is the only way in which a really direct line from Cleveland to Cincinnati can be had. The Cleveland & Columbus line now controls the route to Delaware, and we believe controls the line from Delaware to Springfield. No doubt a large local subscription could be got to make a straight line from Springfield to Cincinnati. In this instance, the Cleveland & Columbus road would give a good deal towards such a result. At present the Cleveland road is powerless; the eastern end being controlled by the N. Y. Central and the western by the Pennsylvania road. If the Cleveland road can succeed in getting a short line into Cincinnati, it will carry the great bulk of passengers between Cleveland & Cincinnati. There are views of this subject we shall present hereafter.

Rockport Railroad.

T. WRIGHTSON, Esq.—You are mistaken in about all you say concerning our railroad in your issue of May 5. You make the distance from the O. & M. Railway to the Ohio river 65 miles. The fact is, it is only 55 by sections. In our statement of 60 miles we threw in 5 for necessary curves.

Neither is there "9 miles of ferry." The President of the Owensboro road has agreed to extend his line to a point opposite Rockport, thus leaving the ordinary river transfer such as is in use at Parkersburg, Wheeling and at Columbus, Ky., where the transfer is over the Mississippi river. St. Louis capital and enterprise having extended the Iron Mountain road to Belmont opposite Columbus.

No man whoever passed over the line of our road would agree with your experienced engineer's estimate. We sent an experienced engineer over the line, and based our estimate on his report. We also conducted a committee appointed by the Board of Trade and Chamber of Commerce over the line and in their published report they say:

"The general surface of the country from Loogootee to Rockport is a little rolling, but when taken as a whole, can be easily graded, there being no hills of consequence to cut through, nor heavy fills to make, besides having the advantage of only having to cross one river and but a few small streams and it is believed that this entire line can be completed and put in running order for a small sum, compared with the cost of other roads. This road, running as it will through Davies, Dubois, and part of Spencer and Martin counties, cuts through the center of a prosperous and enterprising population and opens up a country which possesses perhaps more of the general elements of wealth than almost any other section of the same dimensions in the State of Indiana, and is only equaled in its productiveness by that portion of the same line lying south of Owensboro."

Your "experienced engineer" was hoax-

ing you when he told you it would cost \$200,000 to bridge White river. Basing our calculations on the cost of the bridges over White river on the O. & M. road, \$50,000 is a liberal estimate.

You are also very greatly mistaken as to the terms of our donations. The subscriptions in Spencer county are payable when the road is built through said county. In Martin and Davies when the road is built from the O. & M. to White river. In one township (the township Jasper is in) they are payable when the whole road is built. But the tax, which amounts to about one-half of the whole sum is payable as the work progresses. Your error was in concluding that all was on the same conditions as those in the Jasper township.

Of your proposition for Cincinnati to assist in building a branch to a road Louisville and New Albany are going to build we have nothing to say. That is her business and not ours. We suggest, however, that if she builds a road for New Albany and Louisville, she had better start directly from one of those cities.

Your quotation from Sidney Smith, "about two yards of sore throat," reminds us of another of his witty sayings: "That he never liked to read a book until after he had written a review of it, as it prejudiced his judgment."

You certainly had not learned the facts or you would not have made the statements you did.

We have never presented our road in antagonism with any other Cincinnati line. We had no motive to do so. Your citizens are not engaged in the construction of any line conflicting with ours—any line pointing to the South-west.

We believe if Cincinnati expects to control the trade of the South-west country from the O. & M. to Nashville, she must have this line.

We have sought aid only of Cincinnati. If she declines our offer we do not hold ourselves blameable for having made it. We are satisfied the people of this vast country South-west would find it to their interest to deal in Cincinnati, if they had equally good facilities for reaching here that they have for going elsewhere.

Our enterprise has been fully and freely discussed by the committees of the Board of Trade and Chamber of Commerce, and endorsed by both bodies. The responsibility of the further action by Cincinnati now rests with her citizens and not us.

In your last issue you speak of the point of intersection being further east than Loggootee. This is as Cincinnati shall decide.

By our proposition we give her the ownership and control. If she prefers Shoals, Huron, or Mitchell she can so elect. We have no interest in anything but the success of the road. We chose the point named because it was the shortest. If others can show a better

line we will heartily co-operate in its adoption.

In the hope of a better understanding in the future, we are Truly yours,

L. Q. LEBREULER, Pres.

E. H. SABIN, Sup't R. & N. C. R. R.

We take pleasure in publishing the above statement of the gentlemen connected with the Rockport movement, because we want them fairly and truthfully represented in our Record. It is not our purpose to place a straw in the way of the advancement of either the public or private interests of Cincinnati, and we feel no hesitancy in claiming as much disinterestedness in the advocacy of works of internal improvement as any other journalist in this city or elsewhere.

That the Rockport road, if the connection with the Owensboro & Russellville road should be made as stated in the above, by a direct ferry across the Ohio river, and the gauge made the same as that of the O. & M. Railroad, would constitute a valuable branch and feeder for that line of road, and no doubt add to the trade of our city. All this we cheerfully admit, and possibly, the course we have adopted has been like "cutting off our nose to spite our face;" but, to fall into the full advocacy of this measure was so like doing what Brother Bishop said, at the recent meeting, he was willing and desirous of doing, that is to "heap coals of fire on their heads," that we confess our *humanity* rebelled, not only having conscientious scruples against doing anything that would induce hatred, but a perfect abhorrence of the smell of "singed hair."

Now, what are the facts in the case. Let us see how many blunders and outrages we have committed when reviewed in the light furnished above:

1st. Distance from Rockport to the O. & M. road. Dr. Sabin says above, "the fact is, it is only 55 by sections." Granted. The sectional map shows that it is exactly 55 miles from Rockport to the O. & M. road at the nearest point; but Jasper, a fixed point on the line is 7 miles east of Rockport as can be readily seen by the same sectional map, while Portersville, the point at or near which they propose to cross White river, is $2\frac{1}{2}$ miles west of Jasper, and Loggootee 3 miles east of Portersville. Now, it is fair to claim if the road is run on an *air line* all the way, in wriggling from east to west to make these points, it will add to it one-half of the *easting* and *westing*, which would be just $6\frac{1}{4}$ miles; this added to the 55 makes the whole distance on *air line* principles exactly $61\frac{1}{4}$ miles. Then, if we should do as Dr. Sabin says he did, throw "in a few necessary curves," the total distance would be exactly $66\frac{1}{4}$ miles, which is $1\frac{1}{4}$ mile more than we have represented it.

2d. The 9 mile ferry. On this we stand corrected by the *new* statement now made for

the first time (to our knowledge), that "the President of the Owensboro road has agreed to extend his line to a point opposite Rockport." If, in the discussion of this subject, we have accomplished no other good, the abolition of this nuisance of a "9 mile ferry" is enough to compensate us for our labor, and to elicit everlasting thanks from the friends of the enterprise. We are glad that Judge Weir has furnished such an excellent remedy for "two yards of sore throat," as it corresponds exactly with the suggestions made in our previous issues.

3d. The cost of White river bridge. In this there is a wide margin between our estimate and that of Dr. S. The north approach to White river at Portersville is, we are informed, across a bottom to a good bank on the South side. The County Commissioners of Hamilton have expended about \$100,000 in getting ready to construct abutments for a bridge across Mill creek, this is exclusive of the approaches, and are not through yet. White river is a navigable stream, while we all know that Mill creek is only a duck race. But why build this bridge at all, when, if this is to be a Cincinnati road, it can be just as well avoided? We are glad that what we have said has elicited from these gentlemen the concession that "if she (Cincinnati) prefers Shoals, Huron, or Mitchell she can so elect." If this Rockport road is to be a Cincinnati road, it should not cross the White river at all, but go to some one of the above named places, that might be found most practicable, as to distance, cost of construction, natural resources, and economy of operating. When this is done, it will be a great point accomplished, and for which the true friends of the enterprise and the citizens of Cincinnati, are placed under renewed obligations to us. If the connection is made with the O. & M. road east of White river, it will be much more costly to construct a road thence to Chicago, and the cost, at least, of the bridge over the White river (whatever that may be, whether \$50,000, or \$200,000) will be saved, and the road have a *Cincinnati leaning*, with no more miles of road to make.

4th. The terms of the donations. We were not so far out of the way. Dr. S. says "In one township they are payable when the whole road is built." This was the township of Jasper, and it was the heading to this subscription that we published *verbatim*. We are willing to concede all that is claimed for the others; that those of Spencer county are payable "when a train for freight, and a train for passengers have passed over said road through Spencer county." As to the tax, we will remark, that "all is not gold that glitters." In "Harrison township the proposition to tax was defeated by one vote," at the first submission of the question, and when, as we are informed by the Jasper *Courier* of Feb. 25, 1870, "they are now aroused to the impor-

tance of work, and have got up another petition," it was only carried by "two majority." Hence, they won't do to "hag on" too much.

5th. Dr. S. says "we have never presented our road in antagonism with any other Cincinnati line." This, of course, refers to the united efforts of proposed lines of railway pointing towards Cincinnati, in Kentucky with their connections, and struggling to obtain means to defeat the petition of the Cincinnati Trustees for the right to exercise their powers in the State of Kentucky, before the Kentucky Legislature last winter. We say there was a combined effort to defeat this measure by roads that desire to have a share of the "ten millions" and they could not understand why they should not share it. If we fail to show the part played in this defeat by the Rockport road, we will then own that we have done them an injury, and "barked up the wrong tree."

As far west in Kentucky as Paducah, this hope of sharing in this wonderful prize of "ten millions" was fully entertained, as will be seen by the following extract from the *Herald* of that place. The editor says:

"For five or six millions she can secure the whole of these connections—hold in her own hands the principal control of all of them—and open up a trade of vast millions for her people.

"While in Cincinnati a few weeks since, we talked with various of her most intelligent merchants upon this subject, and we found no one of them who did not prick up his ears and listen attentively to our suggestions; and various of them seemed to be greatly enthused at the picture we drew for them.

"We do not say that Cincinnati ought not to build a road to Chattanooga. We think she is compelled to do so. But we do say, extravagant as it may appear, that a direct connection with the South by Paducah, will prove more valuable to Cincinnati than a road to Chattanooga.

"True, it will almost destroy Evansville, but that we can not help. It will strike Louisville a terrible blow, but for that we are not responsible. It will, however, build Paducah into a great city, which is exactly what we want.

"It is true that Louisville is proposing to build a road from Elizabethtown to Paducah to secure these connections, but it will never be finished—not at least until Cincinnati undertakes to connect with us. But if Louisville does finish it, it is only another reason why Cincinnati should build the Vincennes road as soon as possible."

This is open and above board; the object is plain and clear, and the action of their representatives and senators was in strict accordance with these views and hopes.

The course pursued by the representatives interested along the line of the Cumberland & Ohio Railroad, was avowedly adopted to force Cincinnati to grant them the aid they desired to secure for the construction of their line. This is as well known to outsiders as to those who were in the "ring." They don't deny it, and don't want to deny it, and could not if they did. The Cumberland &

Ohio polled the votes of about five senators and a dozen representatives against the Cincinnati measure, although, at one time, they were pledged *en masse* to support it; of which fact certain gentlemen of Newport and Covington are well aware, and could if necessary testify.

The third in this combination to defeat the Southern Railroad measure and in the hopes of sharing in the "ten millions," is the Owensboro & Russellville Railroad, of which Judge James Weir is President. In a private letter made public by being published in the Cincinnati *Times*, last winter, Judge Weir says:

"We are very sanguine now of a through road north of us, connecting with Chicago and Cincinnati, and wish to make a through connection to Nashville. We have had a committee from the Board of Trade at Cincinnati to see us, and they are very anxious to make our road and the one north of us sixty miles to the Ohio & Mississippi Railroad, and say they will certainly make the connection mentioned. There is also a company organized to make an air-line from Chicago to the Ohio river, in connection with us."

This *air line* referred to, is the north and south road, of which Dr. Thomas, of this city is President, and is openly and confessedly a Chicago line, and runs almost parallel, and but a few miles west of the Rockport and Northern Central route.

Judge Weir, in his letter apologizing for not attending the grand gathering of the friends of the Rockport & Northern Central Railroad, at the Board of Trade Rooms in this city on the 27th of April, says:

"I am greatly interested in a road from Rockport, Indiana, to the Ohio and Mississippi Railway. As this will make a through connection both north and south, I consider such a road (with the connections made by such a road) one of great importance, both to Cincinnati and Nashville, as it will add another short and direct line north and south.

* * * * *

"If the road is made through from the Ohio and Mississippi road to Rockport, you may rest assured of a Southern connection.

"I honestly believe that this connection made by Cincinnati with Nashville and the South will give your city more trade than your proposed road to Chattanooga, although I see no reason why you should not have both of them, as they in no way conflict, and each opens a large and new field of trade to Cincinnati.

"The city of Nashville is also greatly interested in our road, as making a new and important connection, and, I am assured, will give us a very considerable assistance.

* * * * *

"I hope the city of Cincinnati may assist our Rockport neighbors so as to build their road, as I am certain it will pay them back four fold; and when we get a through road to Nashville, the stock will be a good paying stock.

"I find that some of your citizens are lukewarm toward the Rockport road because the members of the Legislature from my section of Kentucky voted against the Chattanooga project. I think this unfair, for we are only anxious to make this northern connection so as to trade with your city, and the interest is

a mutual one, and not particularly for our benefit, as we will be crossing the Elizabethtown and Paducah road, and the Louisville and Memphis, and have other connections.

"We are now only making you the offer to see whether you have any interest in our affairs, or any desire to make a business connection with us; and I venture to say that if you do show any interest in our affairs by making this northern connection, you will find our people ready to grant any other favor that the city of Cincinnati may properly ask at their hauds. We judge by works, not words.

Yours truly, "JAMES WEIR.

"President Owensboro & Russellville R. R."

Mr. Bishop in his remarks also said:

"He was gratified to see the people from Indiana present, and that they took an interest in this matter. He had never doubted that this project was a good one, and he knew more as to Kentucky than as to Indiana. He hoped this road would be built. He had not reflected upon how it should be built, but he was present to express, if necessary, as one of the representatives of the Cincinnati Southern Railroad, that this proposed road would not conflict or interfere with it in any way.

He wanted a committee of active, energetic men appointed by this meeting to canvass for subscribers to the stock of this road, and the sum asked was a small one and ought to be speedily raised. To be sure, some of the people interested in this road had not done right in the Kentucky Legislature as to the Cincinnati Southern Railroad, but he was disposed to do a little better by them than they did by us."

Mr. Bishop evidently understood the matter fully, and to use his Christian language, (although not reported in his speech) he proposed to thus "heap coals of fire on their heads." We think there is but little room left to dodge or deny it; but for fear there may yet be a loop hole left to creep out of we give the following: A correspondent of the *Commercial* dated at Rockport, Sept. 6, 1869, and signed "Railway," and believed to be from the pen of Dr. Sabin, says:

"The value of the Owensboro road is to be enhanced by the success of the Rockport and Northern Central road. On the other hand, without that road it would hardly be possible to build one through this country."

"Loogooteean" in his letter published in the *Martin County Herald* of March 22nd, says: "Cincinnati is disappointed in her favorite Kentucky road, and seeks some consolation in the Rockport road. Those men may cool off; now is our time. Let us snatch this golden opportunity by the hair."

The Loogootee *Herald* of Oct. 26, 1869, in an editorial says: "and now when LeBreuler and other gentlemen, representing at least, a million capital, come to us with a proposition to build a five million road * * * * a road that will double our real estate in twelve months * * * * it is passing belief that there should be found any man or set of men, owning brick and mortar in Loogootee * * * * who will not give this enterprise solid, substantial encouragement." Now couple these with the letter of

Judge Weir, published in the Nashville correspondence of the *Times*, and quoted above, you can readily tell who the capitalists were, and where they expected to get the capital from, by which they were going to accomplish these wonderful results, and we also have fully accounted for the conduct of Judge Weir's Son-in-law, who was a member of the Legislature, and who went home for instructions instead of "swinging round the circle" of the Cincinnati and other banquets; and when he returned, worked and voted against the Southern Railway bill. While, as to whether he was in favor of it before or not Mr. Bishop knows as well as anybody.

We will only further remark that a letter was read at a meeting in Martin County last fall from Judge LeBreuler, which then predicted the defeat of the Cincinnati Southern Railroad measure, and setting forth the absolute necessity (in consequence whereof) for this Rockport line to "her existence," etc. We doubt not by a little labor we can furnish a copy of this document, but presume it not necessary.

We did not intend to have said so much in relation to this matter, nor to have referred to the causes of the defeat of the Southern Railway in the Kentucky Legislature, but the circumstances seem to have forced us in to it. We do not wish to refer to it again. We hope that the Rockport road may be built, and by the aid of Cincinnati money, and donated to and controlled by the O. & M. Railroad; but we don't want it built as a substitute for the Cincinnati Southern Railway, nor under a false conception of "first and only love." It is unnecessary for the Owensboro and Russellville road and those dependent upon it to apologize for the part taken in our defeat last winter; we feel like adopting the language of the man who was tossed over a stone wall by a bull, when after gathering himself up, he saw the bull pawing and scraping and howing his head, said "d—m you, you need not apologize, we believe you done it on purpose."

It is equally true of the Cumberland & Ohio, with the Rockport road, that they are desirable to the interest and trade of our city, and intrinsically deserve to receive aid from our citizens, but their theory was, let us *force* Cincinnati to aid us financially, *then* we will aid her by our influence and votes to get what she so much wants, a charter for her Southern Railway.

—The Marietta and Cincinnati Railroad Company is issuing \$3,000,000 of third mortgage bonds, to raise the wind to put its road into a first-class condition for a first-class road—completing the bridge over the Ohio, at Parkersburg; shortening the line thence to the Big Hocking; straightening the line through the tunnel on the north side of Athens, &c. The Baltimore and Ohio will make its main line by the way of Parkersburg, instead of Wheeling.

Cincinnati and its Railroad Interests.

The recent visit of the Eastern railroad magnates to our city naturally prompts us to look over the ground again and see what's up. This we have done, and frankly confess that we are not much wiser than we were before. We understand that the managers of one line leading into this city are trying to secure the business of the Lake Shore road, that now finds its way here upon another line, and there is all sorts of scheming going on among railroad men to obtain the advantage of position and to command the trade of our city and of the South-west, and as this is a war among themselves by which the public will, in the end, be benefited, we care but little which side wins. We supposed Mr. Jay Gould's visit here had something to do with this struggle, but we have learned otherwise. The Erie Railway is in such a position as not to be disturbed by the movements of its great rival for the trade of this city and the South-west, and Mr. Gould was here, not because Mr. Vanderbilt had preceded him and he suspected mischief, but to complete his plans for an increase of business and propose certain improvements of the Erie property by which the patrons of his road will be better served. The sagacity of the Erie managers in securing the traffic of the South-west, and leaving Mr. Vanderbilt the control of the Lake region, is now so apparent as to elicit approval from those who before condemned. They are undoubtedly masters of the situation, and so permanently established that they can not be driven from it, and it is not very likely that they will be out-generaled. When the great railroad moves were going on across the Mississippi Valley, Commodore Vanderbilt assumed indifference toward Cincinnati as one of the centers of trade desirable to reach. He overlooked the great South-west, and is reported to have said "that it would be many years before it would amount to much, and when it did, if he wanted its traffic he would get it." But a trifle over a year has gone, and it is now worth seeking, but it can not be had as easily as was expected. If the New York Central road commands any material part of the business of this city and the South-west, she will have to do so by making new lines; the old ones are all occupied. The Erie, therefore, so far as interference from that quarter is concerned, may be at ease. Its rival is to be found in the Pennsylvania Central, and its "Pan-Handle and Allentown routes, and its interior line to St. Louis via Indianapolis, and its Louisville connection via Columbus and the Cambridge cut-off." These make it a formidable competitor for the trade of those points. But thus far the Broad Gauge interest has sustained the supremacy its natural advantages give it, and has had the larger share of the traffic of St. Louis, and will have from Louisville when its connecting branch with that city is completed. We see no reason why the broad gauge roads may not continue to hold this business against any competing line now made or projected, as between the Pennsylvania Central and the Erie the interests of Cincinnati are clearly with the latter. The Central does its business to and from the Mississippi River, and the Ohio River at Louisville, by lines in the rear of us. She has an arm, *via* the Little Miami, to this city, which places us upon a side track for the present at any rate; on her main lines we are not even a station. How much we lose by this position it is difficult, if not impossible, to tell, but undoubtedly a very large amount; whereas, upon the Erie, Cincinnati is the axial

point, where the halves of this great line turn their immense traffic in its transit in either direction, and contributes incalculably to the business prosperity of our city.—*Cin. Eng.*

The writer of the above in the *Enquirer* has evidently studied the situation, and has perhaps not got very far from the truth in his conclusions. What change, however, will result when the railroad bridge to Newport is completed, and the Pennsylvania Railroad will have close connections with its friends, the Louisville, Cincinnati & Lexington Railroad, and to the South, we are not prepared to say; but certain it is we can not expect them to do business *through* Cincinnati, that they can do more cheaply by going around it. As they have their lines already swung around us, it would be asking a great deal of them that they should abandon those lines, merely for the purpose of gratifying us. Indeed, our modesty would not admit of our asking it.

ERIE RAILWAY—FREIGHT DEPARTMENT.—It is more difficult to correct an error correctly than to state the facts in the first place. In the absence of the Editor of the RECORD, a notice appeared of the "pleasant time" of our old friend H. P. CLOUGH, Esq., on the occasion of his silver wedding, in which Mr. C. was spoken of as the "General Freight Agent of the Erie Railway;" this error it was undertook to correct in our last week's issue by committing one equally gross, in saying that Mr. W. H. TENNIS, occupies that position. The true facts are that Mr. CLOUGH is a Freight Agent of the Cincinnati, Hamilton & Dayton Railroad, and the Great Western Despatch, and is not connected with the Freight Department of the Erie road Mr. TENNIS, is the Freight Agent of the Erie & Atlantic & Great Western Railways, in Cincinnati, while B. W. BLANCHARD, Esq., is the General Freight Agent, with head quarters at New York, and J. M. OSBORN, is the General South-western Freight Agent, head quarters at Urbana, Ohio.

Railroad Operations in Virginia.

We had the pleasure of a short interview recently with Gen. Wisewell, a contractor for railroad construction between Fredericksburg and Charlottesville, Va., some thirty miles of which route are already graded. At Charlottesville the road will communicate with the Chesapeake and Ohio Railroad, and of course with the railroad connecting toward the South-west via Lynchburg. Thence it will have connection, we take it, with Danville, by a projected railroad, and so on to Charlotte, N. C., &c. From Fredericksburg the road first named, or that from Charlottesville, is to connect with the Baltimore and Potomac railroad at Belle Plain, a point a few miles south-east of Aquia Creek. This Fredericksburg or Belle Plain and Charlottesville Railroad is in process of construction by the Pennsylvania Railroad Co., just as they are constructing the Baltimore and Potomac railroad. It is understood they are to build a railroad from Frede-

ricksburg to Alexandria. Thus we shall have another railroad from the South of Washington. The charters for all these roads—that from Fredericksburg to Belle Plain to Charlottesville, that from Baltimore to the Potomac, with branch to Washington, and that from Fredericksburg to Alexandria—were dead and inert things, but being acquired at very moderate outlay they will, when constructed, command the situation, both toward the south and south-west, and also in the connection of the Chesapeake and Ohio Railroad extension. It is stated that the same great railroad interest now controls the Richmond and Fredericksburg Railroad, and that extending to the head of the York river. Said party is also forming, or has formed, railroad connections beyond Richmond to the Gulf. Things look, indeed, as if Mr. Garrett has been outflanked in the South, and that his control of railroad affairs will be confined to Virginia alone, and that the lower part of the Valley of Virginia. Meantime, the Manassas railroad taps that rich valley, and most assuredly will bring a large trade to Alexandria and Washington, while the gradual extensions of the Loudoun and Hampshire railroad will not only tap the Valley lower down, but must in the end cross it, and in piercing the coal region compete with the great Baltimore and Ohio Railroad itself in rapidity and cheapness of transport of the black diamonds to tide-waters. — *Washington Chronicle*

The New Thames Tunnel.

A new tunnel under the Thames has just been finished successfully in London, at a cost of £16,000; and a third is contemplated. Mr. Barlow, the engineer, seems to have had less trouble in this work than his great predecessor, Brunel. The *London News* says of this tunnel, which is called the subway:

"The mysterious-looking thoroughfare admits of a very brief description. It is a well-constructed tubular iron bridge, about a quarter of a mile long and seven feet in diameter, sunk bodily into the bed of the Thames, so as to be snugly embedded in the London clay through its entire distance. Nowhere is the subway nearer than twenty-two feet to the water and in places it is as much as fifty feet distant—an important fact to bear in mind in comparing the subway with the old Thames tunnel, over the archcrown of which there were here and there but four feet to the water. The subway, in point of fact, dips at the rate of one in thirty. At present the Tower Hill station at the one end and the Tooley street station at the other, are more useful than ornamental, especially when the cage by which passengers are taken down is at the bottom. We use the word "cage" because of its resemblance to that familiar object of the mining districts, but it is in reality rather a nicely padded little apartment, semi-circular in shape, and with cushioned seats for four or six. Into this the passenger enters, and the doors are shut. There is a rumble, a rattle, a consciousness of steady downward motion, and an intention perhaps to remark to your neighbor that it is all very pleasant, but any such reflection is nipped in the bud by the termination of the journey, which has occupied about the time it would take to count a dozen. The distance is only fifty feet. Through a small waiting room you enter a long, low carriage, with seats for seven each side. The signal is given, the drum begins to revolve, the wire rope twines swiftly round it, the pretty omnibus answers to the strain, and in

about sixty seconds the subterranean passage of the Thames has been accomplished. Safety is secured in the shafts by an unusually powerful clip; in the subway by the single line of tram-rails, upon which collisions are impossible. We walked through the narrow, dark road recently, absolutely dryshod, and without any inconvenience from defective ventilation. At times a listener in the center of the subway can hear strange noises, said to be the reverberations of paddles beating the river overhead, and the sounds of hammering and thumping on board vessels. The Tower Hill fares at present are fixed at a penny and twopence, but they will probably have to be reduced by one-half.

Railroad Statistics.

The following Railroad Statistics, which we find compiled in Eastern exchanges, will be of interest to all. It is but just to add that, though accurate when first published, they are daily ceasing to be according to the fact; for in the West, and especially Missouri and Kansas, the new railroads being built, and the old ones being extended, call for a periodical revision of such statistics. The railroad position of Kansas is not given; but her railway system is beginning to assume gigantic proportions, and she will soon take prominent rank among the Railroad States of the Union.

Pennsylvania has an area of 56,000 square miles and has 5,000 miles of railroad. She is the first State in the Union with reference to railroad facilities, having about one mile of railroad to every nine square miles.

Illinois stands second. She has an area of 65,000 square miles and 4,700 miles of railroad, being one mile to every twelve square miles.

New York is the third State in the Union. She has an area of 47,000 square miles, 3,600 miles of rail, being one to each thirteen square miles.

Ohio stands fourth, has an area of 40,000 square miles, 3,700 miles of railroad, and nearly one to ten square miles.

The fifth State is Indiana, with 2,977 miles of road, and 33,000 square miles of area, being one mile of road to eleven square miles.

Iowa is the sixth, with 2,140 miles of rail, and 55,000 square miles, one to twenty-four.

Missouri is the seventh State with 827 miles of road, an area of 65,000 square miles, and but one in thirty-six miles.

Fourteen States.

Hon James B. Beck, of Kentucky, has, at the request of the Congressional Committee on Appropriations, presented a statement of facts showing the importance of the traffic on the Ohio river and the necessity for the completion of the canal improvement round the falls.

Since the canal was opened about \$450,000 have been collected in tolls, and the amount of damage done to vessels passing through in consequence of the imperfect condition of the canal has been about \$1,600,000—making over \$6,000,000 of useless tax on the commerce of the river. To this must be added the damage at times when boats were unable to either go over the falls or through the canal. This, according to the estimate of General Weitzel, aggregates the damage to our trade to the sum of \$15,000,000—enough to have built two adequate canals round those falls.

There has been expended on this work in various forms \$6,500,000, two-thirds of which have been derived from the commerce of the river in the form of tolls. The aggregate of freight that now annually floats on the river is at least 4,000,000 tons, and yet while it is easy to appropriate three or four millions for a Court-house in New York, it has thus far been impossible to obtain a quarter of a million for this work.

The dignity of the fourteen States lying on the Ohio and Mississippi is seen in the following table, showing what proportion of the aggregate productions of the United States is furnished by them:

	The fourteen States.	The whole United States.
Corn, bush.....	631,454,375	838,792,740
Wheat, bush.....	126,930,730	173,104,924
Oats, bush.....	103,995,461	172,643,185
Tobacco, pounds.	345,400,759	434,208,461
Sugar, pounds...	222,636,000	230,982,000
Cotton, pounds...	1,079,799,600	2,154,820,800
Wool, pounds....	31,277,839	60,264,913
Hay, tons.....	9,297,743	19,083,896
Butter, pounds...	339,601,405	459,681,372
Hemp, tons.....	69,470	74,493
Hogs.....	22,225,766	33,512,867
Bituminous coal, bush.....	3,247,261,425	3,621,923,165
Horses and asses	4,804,634	7,400,322
Cattle.....	12,517,392	25,616,019
Sheep.....	11,973,315	22,471,275

This does not include the salt, iron, timber and lumber which constitute a large item of the commerce of these rivers. The above facts are from the census of 1860. That of 1870 will show a far greater proportion, not only of the entire population, but of the entire productions of the principal articles which constitute the wealth of the Republic.—*Times*.

The Cotton Trade of England with India.

The Suez Canal begins to exercise an extraordinary influence upon the trade of the world, and particularly upon the trade between England and India. It was stated in a telegram from London, published in a recent issue, that Bombay cotton sent by way of Suez had been returned to India from Huddersfield as yarn in forty-five days. This seems almost incredible; but really nothing is hardly impossible in this age of steam power and progress. What a revolution the world has passed through in material and scientific development within a few years? Forty-five days for the raw material to go from India to England and back again to India manufactured into yarn? A short time since this would have seemed fabulous, and indeed it is almost magical—it is the magical power of science. We see, too, in this fact the sagacity, foresight and wonderful enterprise of England. She loses no opportunity to open or avail herself of every new improvement and fresh channel of commerce. Cotton is the very life-blood of British commerce, and the English are stimulating its growth and the trade in its fabrics wherever it is possible to do so. They are pushing their telegraph communications and extending their steamship lines to all parts of the globe with the view to monopolize and control the commerce of the world. What a lesson this is for us? With all the advantages of producing this great staple on our own soil, and of that superior quality which can not be grown elsewhere, with unequalled water power and other means for manufacturing, and with

a geographical position which makes this country the very center of the globe, our commercial opportunities are unrivaled. Yet we lag far behind England and lose the great prize of commerce when it might be within our grasp. This is a matter which calls for the serious attention of our people and Congress. Let us take away the burdens and obstructions to our commerce; let us promote our shipping interests; let us appropriate the trade of the West Indies and the neighboring countries of America; let us extend our telegraphs and steamship lines; let us cut a ship canal across Central America, and, in short, let us start on a new career of commercial development wherever we can find an opportunity. If we fail to do this our advantages will be lost, and we shall remain tributary to our great commercial rival.—*N. Y. Herald.*

Great Britain as a Money Lender.

The *Economist* of March 12th prints the following table, compiled by the *Money Market Review*, of the foreign stocks which are dealt in at the London Stock Exchange:

Stock.	Amount.
United States.....	£ 422,968 000
Confederate States (cotton bonds).....	2,418,800
Argentine Republic	5,459,000
Austria	15,000,000
Brazil	13,519,400
Chili	4,929,320
Columbia.....	127,000
Cuba	1,568,000
Denmark	4,198,000
Danubian Principalities	2,054,730
Holland	54,428,642
Ecuador	1,824,000
Greece	7,077,625
Guatemala	578,560
Honduras	1,000,000
Italy	37,583,824
Mexico	27,471,450
Montevideo.....	941,500
Morocco	439,200
New Granada.....	7,002,000
Peru	7,512,450
Portugal	47,333,000
Russia	83,592,500
Sardinia	3,008,880
San Domingo.....	118,700
Spain	97,000,000
Sweden	3,697,600
Turkey	68,950,736
Venezuela	5,691,000
Egypt	27,211,000
Total	954,784,657

The same journal quotes from the work of Fenn on the Funds, the statement that during the two years ending with March, 1869, securities were created in London alone, by negotiating loans and issuing shares for foreign nations and for corporations, to the amount of 120,000,000 pounds sterling, and adds:

"This is no exaggerated estimate, when we remember how many foreign and colonial bonds, railway debentures and miscellaneous shares have been placed before the public. The previous aggregate of debt and investment in all nations is estimated by the same authority at about 5,500 millions, so that the total is raised to 5,620 millions sterling."

The stocks named in the table above are all regularly called in the London Stock Exchange, and all but three pay their interest in London. The debt of this country is included, because it is "very largely held here, and because investments are increasing in it

at the rate of many millions of dollars per annum." But besides these, there are public colonial debts, amounting to nearly \$31,000,000 of pounds sterling, belonging to the same class.

Now, of this whole mass of 1,035,525,793 pounds sterling—"a scarcely conceivable amount"—the great bulk, as these high authorities believe, is now actually held and owned in England. "As to the foreign debts, we suspect," says the *Economist*, "it would be too liberal to deduct 400,000,000 pounds sterling on account of other holdings than our own." But, at the very lowest, the British loans of this kind can not be estimated at less than 570,000,000 pounds sterling, on which the interest is almost always six or seven per cent. But, at only five per cent., that journal concludes that Great Britain "receives an annual tribute in the shape of interest upon its foreign and colonial investments of not less than 28,500,000 pounds sterling, and we believe that it is considerably under the actual amount."

Thus one single nation, with a much smaller population and fewer natural resources than our own, has saved, and invested in loans, enough to secure it an annual income of 140,000,000 dollars. Of the amount of good which these loans have done in bringing new lands into cultivation, enlarging trade and repairing the waste of wars in other lands, no estimate can be made, but it is immense. The result to Great Britain, however, is plain enough—more abundant and cheaper living for her people, lighter taxation, and a more rapid growth in wealth and intelligence. It does not require a very lively imagination to trace to this cause the great change now going on in British politics in the direction of freedom and equal rights. However this may be, it is at least evident enough that this use of a nation's earnings is a much better one than firing it away in gun-powder.—*N. Y. Evening Post.*

OUR TEXTILE FABRICS—A recent correspondence between the Hon. G. W. Morgan, of Ohio, and Gen. Capron, Commissioner of Agriculture, in relation to our textile fabrics, is suggestive. The Commissioner shows by statistics that the production of hemp, linseed and flax has largely increased in this country during the last ten years; but that the home production is still far from being equal to the consumption. The demand for textile fabrics has been somewhat astonishing of late, and it will be a subject of congratulation among many to know that steps are to be taken under the direction of the Department of Agriculture to introduce in this country several new varieties of fibers, and to encourage their cultivation for manufacturing purposes. Commissioner Capron has lately secured in Spain the seed of the Esparto grass, which fiber now constitutes more than two-thirds of the British imports of paper stock. It is believed that it will flourish as well on the sunny slopes of our Southern mountains as in its own native Spain. Paper makers and users are those who can best appreciate the importance of this step. It is the need of a little Government aid of this kind, through the medium of the Department of Agriculture, which has prevented the nation from making use of many of its natural advantages. One good work generally leads to another; and it may safely be assumed that our National Department of Agriculture, which has in the past been practically useless, will yet be of immense service in developing our unbounded resources.—*U. S. Economist.*

—It is stated that the freights from China to London, or New York, in steamer by way of the Suez Canal, will be, in gold, \$18 per ton, ship's measurement of fifty cubic feet—625 pounds of tea averaging a ton by that measurement. This would make the freight by the Suez route about \$20 per ton in currency, or 3 1-5 cents per pound. The *San Francisco Bulletin* states that the freight from China to that port is \$8 per ton, or about 1 1-5 cents per pound, and that thence by rail to New York it is six cents per pound. The time consumed by the latter route is 35 days, by the Suez route 65 days, by the Cape route 140 to 150 days. The value of an ordinary cargo of tea is about \$300,000, the interest on which at 8 per cent. is equal to \$2,000 per month.

How the Duration of a Flash of Lightning is Measured.

Scientific men assert that a flash of lightning does not endure for more than the millionth part of a second. How did they find this out? Obviously not by any ordinary means, for such small portions of time are utterly beyond the cognizance of our senses, and even our thoughts. Watches which mark quarter seconds are not uncommon. We have seen men try to count the beats of such a watch, and it is but rarely that we have met any one who could succeed. Not only could they not count them aloud, but they could not even think of the numbers so as to keep a record of them in their minds. How, then, was it possible to measure a portion of time so much less in quantity?

Almost every boy has whirled a fiery brand in the air so as to make a "round rovin." How does it happen that such a moving point seems to make a fiery circle in the air? In this way: an impression made upon our sense of sight can not be instantaneously removed. It lasts for about one-eighth of a second. Hence, if the moving point completes the circuit in less than the eighth of a second, it will make a new impression before the old one has expired; the path which it describes will be constantly visible, and the circle will appear complete. In the same way, if a wheel with many spokes be caused to revolve rapidly, the spokes become invisible and the wheel appears solid. But if the wheel were illuminated by a flash which did not last long enough for one spoke to take the place of another, the spokes would be visible, and the wheel would appear at rest.

A few years ago we saw such an experiment tried in Rochester, N. Y. The lecturer had a wheel, which was painted white, and on the white ground was painted a number of red rays. When whirled with a very moderate velocity, the wheel appeared of a dim, pinkish hue. If, while thus revolving, it were illuminated by a flash from burning gunpowder, the spokes would not be visible, the flash of even the best gunpowder lasting longer than the time required for one spoke to take the place of another. But when, instead of gunpowder, fulminating mercury was used, the spokes were visible and the wheel appeared to stand still, so much more rapidly than gunpowder does fulminating mercury explodes.

By driving the wheel a little faster, the flash from the fulminate failed to show the individual spokes; showing that even the flash from fulminating mercury lasted long enough to allow each spoke to move into the place of its predecessor before the impression made by the latter had faded from the retina.

A Leyden jar was now charged and discharged before the revolving wheel, and then the latter could not be driven so fast that the spokes would not be visible and the wheel appear to stand still. Now, if we knew the velocity of the wheel and the number of the spokes, it would be easy to tell the time required for one spoke to take the place of another. Suppose the wheel had 100 spokes, and moved at the rate of 1,000 revolutions per second; it is obvious that if the individual spokes be seen, the duration of the flash must be less than the one hundred thousandth part of a second.

Such is a rude outline of the method by which the duration of a flash of lightning is measured. Of course, the apparatus used in determining this duration is much more delicate than that which we have described, and which was used merely for illustration before a large audience. But the general principle is the same, and in this way it was determined that the duration of a flash of lightning is less than the millionth part of a second. Hence a carriage wheel in rapid motion, seen at night by means of a flash of lightning appears at rest. The swiftest race-horse would not have time to make a perceptible movement of a muscle, but would appear as if carved in some inanimate material; and even the swiftest locomotive and its train would appear as if some icy hand had been laid on its energies.

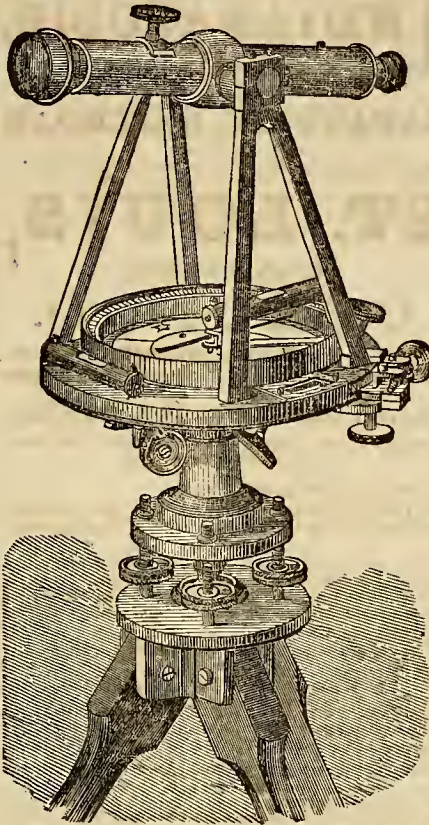
That a flash of lightning endures for a certain period there can be no doubt, but this period, when compared with the duration of any mechanical operation, is infinitely small. Stand beside a target at which bullets are being fired from a distance of say 200 yards, and first you will see the flash, after a short interval you will hear the *thud* of the bullet, and finally you will hear the report of the gun. In this case, you might see the flash, and afterwards be shot by the bullet. Indeed, so much time elapses between the flash and arrival of the bullet, from a distance of 250 yards, that it would be impossible to hit an active man, at that distance, if there was a cover to which he could spring when he saw the gun discharged.

How different with lightning! There the flash and the stroke are simultaneous. If we see the flash we are safe. He that is killed by lightning never hears the thunder.—*The Technologist*.

By the recent survey of the Delaware River, to ascertain the best foundation for a bridge between Philadelphia and Camden, it has been found that the average depth of the Jersey channel is thirteen feet. On the Philadelphia side the water averages fifty-six feet in depth. The distance across the river is as follows: Opposite Chestnut street, 3,450 feet; opposite Market, 3,330; opposite Arch, 3,594; opposite Race, 3,333; opposite Vine, 3,285; opposite Callowhill, 2,793.

—The total value of imports of dry goods for March at the port of New York is \$12,993,106. This, though \$327,953 less than those of March, 1869, is \$5,651,452 in excess of those for March, 1868. The amount entered for consumption, valued at \$9,762,526, though a little less than that for March of last year, is \$2,947,343 greater than that for March, 1868; and about the same difference of comparative totals in favor of the past month is noticeable in the amounts entered for warehousing and withdrawn for consumption. The total value of the goods thrown upon the market during the month (\$13,795,111) shows a considerable increase as compared with the totals for the corresponding months of the two preceding years.

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Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:30 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cincinnati time.

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7.00 A. M. CINCINNATI EXPRESS.

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Coopersown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

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The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 pm	2.35 pm
Lawrenceburg Accommodation.....	4.40 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7.40 A. M.	6.30 P. M.
do do do.....	9.45 A. M.	7.00 A. M.
Toledo, Detroit & Canada.....	7.15 A. M.	10.25 P. M.
do do do.....	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago.....	7.45 A. M.	10.25 P. M.
do do do.....	2.30 P. M.	5.40 P. M.
do do do.....	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo.....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	7.20 P. M.	10.25 A. M.
Sandusky, Cleveland & Buffalo.....	6.30 P. M.	10.20 A. M.
Muncie & Indianapolis.....	7.15 A. M.	10.25 P. M.
do do do.....	5.40 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond.....	7.15 A. M.	10.25 P. M.
do do do.....	5.40 P. M.	10.25 A. M.
Hamilton Accommodation.....	9.30 A. M.	8.05 A. M.
do do do.....	6.50 A. M.	6.50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

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Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

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Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Essex with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

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FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:00 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Philadelphia for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:10, 7:2, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, MAY 26, 1870.

Public Lands of the United States

IN REFERENCE TO

PRODUCTS AND RAILROADS.

There is a great deal said about the waste of public lands, and a great outcry about railroad grants; yet, if the public lands were disposed of each year, at the same ratio that they have been the last year, it will take two hundred years to get rid of the public lands! In one-fourth of this time we expect to acquire all North America and the West India Islands; so that the newspaper outcry about grants to railroads is a mere humbug, which only exhibits their ignorance of the subject. We propose to show here, on the authority of the General Land Office, the outline features of the public domain, and its products and value.

1. What is the domain of the United States and how is it consumed in grants? The following is the statement of the General Land Office:

1. The area of the public lands, exclusive of the Russian purchase, is 1,465,468,800 acres. The extent of that purchase is estimated at 577,390 square miles, or 369,529,600 acres, making a total of 1,834,998,400 acres.

2. The aggregate of public lands which have been surveyed is 485,311,778 acres, leaving a residue of 1,349,686,622 acres yet unsurveyed.

3. The quantity of public land disposed of during the last fiscal year is 7,041,114.50 acres, of which there were sold for cash 756,619.61 acres; located with military bounty land warrants, 476,760 acres; taken for homesteads under the acts of 1862, 1864 and 1866, 1,788,043.49 acres; approved to several States as swamp "in place," 1,030,020.22 acres; for indemnity swamp selections, 36,429.93 acres; titles vested in certain States under railroad, wagon-road and ship-canal grants for 533,168.52 acres, and located with agricultural and mechanic college scrip, together with selections made by States within their respective limits, 2,420,072.73 acres.

Now, on that statement let us make a comment:

1. The area of public lands is eighteen hundred millions of acres, and the amount disposed of last year is seven millions of acres; so that the time, at this rate, required to consume the public domain will be two hundred and sixty years; but, as a great deal of the land is mountainous, we will throw off one hundred years, and say that it will take one hundred and fifty years to consume the public domain.

2. The amount given to the humbug agri-

cultural colleges is five times that given for railroads and canals—we mean for the particular years 1867-8. The next largest grant was for swamp lands. The next largest grant is for homesteads. Nobody regrets that, so far as the actual settlers are concerned; but there is a suspicion that many of these are bogus, made to cover the speculations of some enterprising men; but let this go. The next largest item is that of swamp lands. These are really *douceurs* to the several States. They are nominally given for improvement, by the States; but that, too, is humbug. With little exception, these swamp lands are among the richest lands in the country, and want little improvement, except the gradual settling up of the country, which dries the land. On the other hand, all the lands given to railroads go toward the actual settlement and wealth of the country. Those who are opposing railroad grants are opposing the first principles of political economy. The immense bodies of public lands can not be improved till there are roads to them, and there will be no roads till the government aids them. The total amount of cash sales were 756,619.61 acres, or a tenth of the whole amount disposed of.

Let us now consider some of the products and characteristics of the principal tracts of public lands:

1. Of Minnesota there remains 36,776,170 acres of public land unappropriated, an area almost equal to that of the State of Ohio, and twenty-fold the whole grant of railroads yet appropriated.

Minnesota, lying near the centre of the continent, occupies the summit of the interior plateau formed by the converging basins of the Mississippi, Lake Superior and Lake Winnipeg, embracing the head-waters of three great river systems of North America. Its series of undulating plains, seldom broken by abrupt elevations and never rising into mountains, present an agreeable variety of prairie, alternating with belts of heavy timber and studded with beautiful lakes, the crystal waters and euphonious Indian names of which have become proverbial, and whose intercommunication, together with the large and numerous rivers, forms a system of internal navigation permeating all parts of the State.

The whole of Minnesota is believed to be arable land, and its soil well adapted to small grains.

2. Dacotah (including Wyoming). This territory is thus described:

Dacotah embraces a large scope of unoccupied territory, fringed with white settlements in its southern border along the Missouri river. It may be divided into two tracts nearly square, of which the eastern extends from the boundary of Nebraska northward to the national frontier, and measures a little more than 400 miles square. The western portion forms a sort of echelon to the eastern and extends from the boundary of Colorado northward to that of Montana, being an oblong figure, the length of which and breadth respectively are 330 and 260 miles. The extreme length of the Territory is 900 miles, its

extreme breadth 535, its area being 240,597 square miles, or 153,982,080 acres. The eastern section is traversed by the Missouri river, the numerous affluents of which form an extensive system of internal navigation and drainage. Dacotah has been described by geographers as an undulating plain rising gradually westward to the Rocky mountains, with an occasional approach to hills or terraces. There is nothing that can be called mountain within its limits. The eastern and southern parts of the eastern section are known to present very considerable agricultural facilities.

There are 145,000,000 acres of public land undisposed of in this territory.

3. Nebraska, the youngest State in the American Union, extends from the Missouri westward to the Rocky mountains, with an extreme length of 412 miles, decreasing to 310 miles on the southern border, its extreme width being 208 miles, diminishing to 138 miles on the west.

Its area is 75,905 square miles, or 48,636,800 acres.

The country through its entire length dips toward the Missouri river, being upon the western slope of the great central basin of the North American continent. The larger portion is elevated and undulating prairie; there are no mountains or high hills; the bottom lands of the river valleys are generally level. Above these, from forty to one hundred feet, are second bottoms or table lands, sloping backward to the bluffs, which range with the general level of the country. These bluffs sometimes rise hundreds of feet above the river level; back of these is the undulating prairie, well watered with springs and running streams, and covered with excellent grasses.

The climate is milder than in the same latitude of the Eastern States. In Nebraska there are 42,523,627 acres of public lands unappropriated.

4. Kansas, one of the youngest and largest States in the Union, occupying the western slope of the Missouri Valley, varies in length, from east to west, from 344 to 408 miles, with uniform breadth of 208. Its area is 81,318 square miles, or 52,043,520 acres.

The eastern half is undulating prairie, alternating with timber. The latter is generally found skirting the streams, which flow through beautiful valleys. The western part of the State is more level, the depressions more gradual, and timber less abundant.

The extreme western portion forms part of a sterile belt running from the 47th parallel to New Mexico. The State is drained by a number of large rivers, affluents of the Missouri. No mountains, swamps or marshes have been discovered. The timber consists of cottonwood, sycamore, oak, ash, hickory, walnut, hackberry, sugar maple, sumac and willow. The growth of timber is probably adequate to home demand, but not sufficiently abundant to form the basis of an export lumber trade.

The soil of the eastern part of the State is very good, and the State fast filling up with population. In Kansas there were in 1867-8, an area of 43,148,876 acres of land.

5. Colorado Territory is an auriferous region, traversed by ranges of the Rocky Mountains spreading out and enclosing beautiful table lands called Parks, elevated several thousand feet above the sea. The San Luis Park, in the southern portion, is an im-

mense elliptical bowl, the bed of a primeval sea, elevated by volcanic agency. Its bottom, seemingly smooth as water surface, embraces an area of 9,400 square miles. It is watered by thirty-five mountain streams, descending from an encircling rim of snow-capped peaks and ridges, exhibiting a remarkable symmetry of configuration. The scenery, everywhere sublime, presents the ever-varying phases of the kaleidoscope; successive escarpments of terraced hills terminate in an amphitheatre of mountains enclosing an area of 18,000 square miles. Upon their rugged sides the point of cessation of all arborescence is clearly distinguishable, above which the naked granite and snow mark the reign of perpetual winter. The atmosphere is perfectly pure, transmitting the wondrous beauty and variety of the scenery, and the vivid and gorgeous colorings of the sky, iris-like, playing in interchanging lights and shades as varied and copious as the altering angles of the solar rays. There is scarce any spring or autumn, the year being divided between a winter and a summer, both characterized by mildness of temperature and narrow range of barometric and thermometric oscillation.

Northward are three other Parks, named in their ascending order South Park, Middle Park and North Park; they are smaller in size and less variegated in beautiful and sublime scenery, yet not unworthy of association with San Luis Park. The remaining portion of Colorado may be briefly described as mountainous, with occasional reproductions of the peculiar features above described. The elements of an agricultural character are as yet variously reported, but unquestioned facts represent enormous yields of cereals from imperfect agricultural enterprise. Sixty bushels of wheat to the acre is a crop well attested in several localities. The mineral wealth of the country is enormous; the yield of gold in 1862 was reported at \$12,000,000. Silver has been mined on Snake river which produces \$600 per ton. Large tracts of bituminous coal are also reported. The population in 1860 was 34,277; in 1863 it was 80,000; the present population is a matter of conflicting estimates. It is probably near 100,000. The immigration is rapid. The completion of the Pacific Railroad will soon enable it to reach a still higher aggregate. Denver City, Central City, Colorado City and Nevada City are the principal towns. The public lands undisposed of in Colorado are over sixty-two million eight hundred and fifty thousand acres.

6. Utah Territory, forming part of the surveying district of Colorado, is without an organization for the disposal of the public lands, no land district having as yet been authorized. No surveys, therefore, have been prosecuted in Utah during the last year, except the subdivision of the vacated Indian reservations of Deep creek and Corn creek into forty-acre tracts, as required by the provisions of an act of Congress of May 5, 1864, for vacating and selling the present Indian reservations therein. The returns of these surveys show the area embraced within those reservations to be ninety-two thousand six hundred and seventy-three acres, which with the former surveys of similar lands, as also of the public domain, exhibits an aggregate of surveyed lands in Utah of two million five hundred and seventeen thousand nine hundred and twelve acres.

Utah has 51,139,646 acres of public land unappropriated.

It is a singular comment on our boasted

laws and institutions, that the Government has been unable to sell its land in Utah, on account of the Mormons.

7. New Mexico was acquired from the republic of Mexico, it having been for ages occupied with the institutions of Spanish civilization. The average length from north to south is 352 miles, and average breadth 332, with an area of 121,201 square miles, or 77,568,640 acres.

East of the Sierra Madre the general aspect of the country is mountainous, with the exception of the longitudinal valley of the Rio Grande, about twenty miles wide. The mountain ranges vary from 6,000 to 12,000 feet in altitude, and are composed of igneous rocks. The interior forms a varied country, well wooded and of generally good agricultural character. The soil of the valley of New Mexico, though to superficial observation not promising, is rich in elements of fertility which a judicious irrigation easily develops. The most fertile part of this valley is below Santa Fe, and is called Rio Abajo, or country down the river. It is not uncommon here to raise two crops a year. The table lands are admirable for grazing, producing a sort of grass which is naturally enured by the operation of the climate. The latter is, on the whole, very equable and salubrious. The mutton raised in New Mexico is renowned for its excellence. The production of cereals, potatoes and other articles of food for man and beast, is very large for the amount employed in agriculture. The harder kinds of wood are very scarce. Cottonwood, however, is found in considerable quantities on the banks of the streams.

New Mexico has 73,005,192 acres of public lands unappropriated.

8. Arizona Territory, one of the extreme south-western political divisions of the United States, forms part of the basin of the Colorado. Its surface consists of elevated table lands, broken by mountain ranges and interspersed with fertile valleys and sandy wastes. Its northern and north-eastern portions are comparatively unexplored and mostly in the occupancy of Indians. South of the Gila and west of the 112th meridian the country is sandy, supposed not generally arable, except along that river. In other portions there are many beautiful valleys, containing millions of acres of extraordinary fertility, producing wheat, barley, oats, tobacco, fruits and vegetables. In the south, cotton and sugar crops are remunerative, and on the hills and mountain sides is found a rich and abundant pasturage. Indeed, here are some of the finest grazing lands in the Union.

Arizona has 68,855,956 acres of public lands unappropriated.

9. California extends along the Pacific coast seven hundred and fifty miles, with an average breadth of two hundred and thirty. Its area is 188,981 square miles, or 120,947,840 acres, of which not less than eighty-nine millions, including swamp and tule lands capable of reclamation, are suited to some kinds of profitable husbandry. Of these, over forty millions are fit for the plough, and the remainder present excellent facilities for stock raising, fruit-growing and all the other branches of agriculture. This agricultural area exceeds that of great Britain and Ireland, or the entire peninsular of Italy. The State also contains about forty millions of

acres of mineral land, unsurpassed for productiveness.

About thirty millions of acres have been surveyed, leaving a residue unsurveyed of ninety millions. Nearly nine millions have been granted to the State by the general Government, under various acts of Congress, for common schools, agricultural colleges, public buildings and internal improvements.

Of the forty million acres of arable land, fourteen millions are found in the basin of the Sacramento and San Joaquin rivers, sixteen millions in the coast valleys, and the residue in the region called the "Colorado Desert," in Owen's River Valley and the Klamath Basin. When irrigation is practiced on an extensive scale, as it must be within a few years, and the valley of the Colorado is brought under its influence, much of what is now characterized as "desert" will become productive and valuable. The land not fit for the plough, but valuable for grazing and in a measure for horticultural purposes, especially the grape culture, is to be found on the foot-hills and slopes of the Sierra Nevada and Coast Range Mountains.

There are in California 106,062,392 acres of public lands unsold and unappropriated.

10. Nevada was admitted into the Union October 31, 1864. Its area, according to the boundaries defined in its own constitution, is 81,539 square miles, or 52,184,960 acres. By an act of Congress approved May 5, 1866, provision was made for incorporating within its limits additional territory on its eastern and south-eastern borders, and which now constitutes a part of the soil of the State, increasing its area to 112,090 square miles, equal to 71,737,741 acres, included within the following boundaries, to wit: Commencing on the 42d parallel of north latitude at the intersection of the meridian of the 37th degree of longitude west from Washington; thence south on said meridian to the middle of the river Colorado of the West; thence down the middle of said river to the eastern boundary of the State of California; thence with the eastern boundary of California to the 42d parallel of latitude; thence east with said parallel to the place of beginning. The water surface of its numerous lakes may cover an area of 1,690 square miles, or 1,081,600 acres, leaving a land surface within the State of 110,400 square miles, equivalent to 70,656,141 acres, being more than twice the size of the State of Illinois, nearly four times the size of Indiana, and containing about one-fourth the area of the Persian empire, to which, in geological formation, it has sometimes been compared. About 1,000,000 acres of the public lands have been surveyed, and about 5,000,000 are held by the State under the various acts of Congress granting lands for internal improvements, schools and roads.

Nevada constitutes a part of the great interior basin included between the Wasatch and Sierra Nevada mountains, and lies from 4,000 to 6,000 feet above the level of the sea, everywhere traversed by longitudinal mountain ranges, rising from 2,000 to 8,000 feet above the adjacent country, with intervening valleys and plains, the waters of which are absorbed in saline lakes or swallowed up by the earth, its rivers and lakes finding no outlet to the sea, except in the south-east corner bordering on the Colorado river.

Nevada has 67,090,382 acres unappropriated.

11. Oregon has California on the south and Washington Territory on the north, extending

from the Pacific ocean to Snake river, the latter constituting a part of its eastern boundary. It is 350 miles long from east to west, and 275 wide from north to south, containing 95,274 square miles, or 60,975,360 acres, being about half as large as the State of California.

The Coast mountains and the Sierra Nevada, traversing California, continue northward through Oregon; the latter, after leaving California, are named the Cascades. Near the southern boundary the chain throws off a branch called the Blue mountains, which extends north-eastwardly through the State, passing into Washington and Idaho.

The course of the Cascades through the State is generally parallel with the shore of the Pacific, and distant therefrom an average of 110 miles. In California the direction of the Coast mountains and coast valleys is that of general parallelism with the sea-shore; the mountains sometimes approaching close to the shore and then receding miles from it, leaving belts of arable land between them and the ocean. In Oregon the Coast Range consists of a series of high lands running at right angles with the shore, with valleys and rivers between the numerous spurs having the same general direction as the highlands.

In reference to climate and agricultural capacities, Oregon may be divided into two distinct parts, the eastern and western, lying respectively on the east and west sides of the Cascades.

Western Oregon, the portion of the State first settled, and containing the great preponderance of its present population, is 275 miles in length, with an average width of 110, being nearly one-third of the whole State, and contains about 31,000 square miles, or nearly 20,000,000 acres, all of which is valuable for agriculture, for grazing, or for timber growing, excepting the crests of some of the highest mountains. It is more than four times as large as Massachusetts, nearly three times as large as Maryland, and is greater in extent than the united areas of Maryland, New Jersey, Massachusetts and Rhode Island.

Oregon has 52,742,678 acres unappropriated.

12. Washington Territory, immediately north of the State of Oregon, is 345 miles from east to west, and 230 from north to south, containing about 69,994 square miles, or 44,796,160 acres; about three and a half millions of which are surveyed. The Cascades divide it, like Oregon, into eastern and western sections, differing from each other in climate, soil and natural and cultivated products. Although occupying higher latitude than Oregon, the climate of the western section is very similar to that State. It is said to resemble also the climate of England, in the amount of rain-fall, as well as in the range of the thermometer throughout the year.

13. The Territory of Idaho, from north to south, is 410 miles; its width on the southern boundary 385; while on the northern it is about 50. It contains 90,932 square miles, or 58,196,480 acres, nearly all of which is subject to disposal as public lands.

14. Montana, with the exception of a small projection, lies between the 45th and 49th parallels of latitude and the 104th and 116th meridians of longitude, embracing an area of 143,776 square miles, or 92,016,640 acres, all of which is subject to disposal as public lands.

In summing up the results in these fourteen States and Territories, we find the aggregate

of unappropriated public lands to be as follows:

	Acres.
California.....	106,062,392
Minnesota.....	36,776,170
Oregon.....	52,740,078
Kansas.....	43,148,876
Nevada.....	67,090,382
Nebraska.....	42,523,627
Washington.....	41,627,464
New Mexico.....	73,005,192
Utah.....	51,139,646
Dacotah.....	145,295,284
Colorado.....	62,870,665
Montana.....	86,904,605
Arizona.....	68,885,954
Idaho.....	54,963,344

Aggregate.....933,029,679

In addition to this quantity, there are in the States of Iowa, Missouri, Arkansas and Louisiana, west of the Mississippi, 30,000,000 acres unsold and unappropriated. In the States east of the Mississippi, there are about 30,000,000 more, making in all one thousand millions of acres of unsold and unappropriated public lands. At the rate of twenty sections, or 12,000 acres, per mile, for the Northern and Southern Pacific roads, averaging 1,400 miles each through the public lands, the whole amount consumed by railroads will be 33,600,000 acres, or one-thirtieth part of the public domain. There is not a private land owner in the country who would not give one acre in thirty to make a road, and it is entirely certain the people of the United States can do nothing with their landed domain so advantageous as to make those roads. We do not share either the spirit or principles of those who would have this Government exhibit a stingy, picayune spirit in the improvement and development of the country. It is the only really good thing the Government can do in times of peace, and we have not, and shall not use the public lands as fast as we acquire new territory.

Ho! for Mackinaw!

It will be remembered that we chronicled last fall, the departure for Mackinaw City of our old friend and citizen of Cincinnati, EDGAR CONKLING, Esq. Mackinaw City was then an unbroken wilderness, but the merry ring in the primeval forest of the woodman's ax has, in a measure, changed the face of nature, and the base of a great future metropolis has been laid. To the north-west shore of this "natural ferry across the lakes," will point the great North Pacific Railroad, just as certain as the sun rises and sets; and with equal certainty, will connecting lines meet it on the south-east side of the straits, making it a "toll-gate" on the commerce of the world that can not fail, under the judicious, energetic and liberal management and proprietary ownership of Mr. CONKLING, to build up a great city. The wonderful mineral wealth of the south shore of Lake Superior, as well as the northern portion of the lower peninsular, with

the combined facilities of lake commerce and the connecting of railroads, that before the next five years must meet there, will build up a manufacturing and commercial interest at this point unsurpassed in the growth of American cities. We understand that docks and piers have been built this winter, and conveniences arranged for the transaction of steam-boat business, wood chopped to supply passing boats, and a considerable number of families have pitched their cabins to start the town. When the whistle of the locomotive coming from Cincinnati and the South, by the Cincinnati, Grand Rapids and Mackinaw road, from New York by the Detroit and Mackinaw road, both land-grant roads, with means enough to construct them, and that have to be made within the next five years, or forfeit their princely grants, and the whistle of the North Pacific, freighted with goods and passengers from Asia, shall hail each other across the narrow straits, then will the dream and hopes of our worthy townsman be fulfilled, and he will be prepared to say, "Now let thy servant depart in peace." We trust, however, although thus prepared, he may long live to enjoy the fruit of his sagacity, and enlarge the sphere of his usefulness.

The following is the first blast from the Herald's hugh announcing the coming commercial Queen of the Lakes:

STEAMER GRACE DORMER!

Daily Freight and Passenger Line

BETWEEN

CHEBOYGAN,

MACKINAW CITY,

AND MACKINAW.

The only connection with the Grand Trunk and the Buffalo and Green Bay Line of Steamers.

TOUCHING WHEN REQUIRED AT

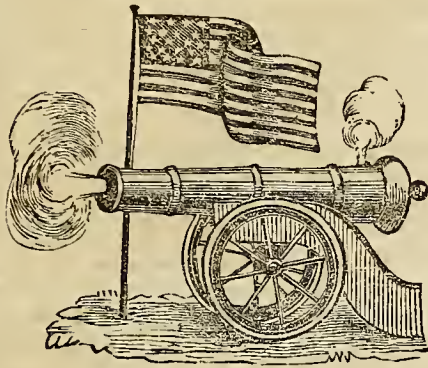
*Hammond's Bay, Detour, Carp River,
St. Helena, Cross Village, Little
Traverse, Beaver Island.*

And all other important points in the vicinity of the Straits, thus forming the best Steam-boat, Freight and Passenger Line between the North and South Shores, giving to the tourist facilities which can not be equaled.

O. H. SHURTLIFF, Captain.

AGENTS.—T. A. Perrin, Cheboygan; P. Divine, Mackinaw City; J. Bates, Mackinaw.

The business of Savannah is rapidly on the increase. During the past five months the cotton exported amounted to 1,300,000 bales, while that shipped from Charleston was about 800,000. The duties on imports have averaged per month \$65,000 in gold. Considerable northern capital is finding its way to Savannah, which, so far as business is concerned, seems to have taken the lead of most of the cities of the South.

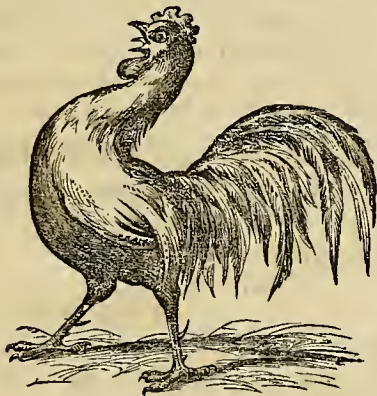


Rockport Triumphant.

THE COUNTRY SAFE.

RAILROAD TO BE BUILT

NOBODY HURT!!!



Railroad Prospects.

[From the Jasper Weekly Courier of May 13.]

We are informed by Mr. S. Bixler that he has received a letter from Dr. Sabin, Secretary of the Rockport and Northern Central R. R. Co., in which he is informed that the \$300,000 asked of Cincinnati has been subscribed in that city, but that it is necessary that the donations along the line should also be made to the amount of \$300,000, as contemplated, but which at the time of the meeting in Cincinnati was not quite accomplished. This can be readily done, however, if those who have charge of the subscription books will go to work with a will, which we hope they will do immediately.

We have also received two circulars from Cincinnati, entitled "Railroad Record-extra," and published by E. D. Mansfield and T. Wrightson, urging reasons why the capitalists of Cincinnati should not encourage this enterprise, and endeavoring to divide and confuse the counsels of its friends. The main points in these "Records" are based upon gross misunderstandings, which it might be worth while to correct, if the money was not already made up in that city, but that being the case, the point to them is blunted, and their correction rendered unnecessary.

We say now to the people along the line go to work, subscribe the amounts which you ought, and Cincinnati will soon realize the benefits she will derive from her liberal aid, the statements of the "Record" he practically demonstrated to be wrong, and you have all the advantages to be gained from being on a line of railroad connection with the business world.

The fact is, at the date of the above publication, about \$35,000 only had been subscribed. If the \$250,000 on the line of the road is in an equally hopeful condition, how long will it take to raise the balance? Comment is unnecessary.

Illinois—New Constitution.

PROVISIONS IN REGARD TO RAILROADS.

The proposed new constitution of Illinois makes the following provisions in regard to the management and operating of railroads in that State. Of the wisdom of some of the provisions we have very grave doubts, especially as they are to be incorporated into the fundamental law of the State, which, unlike an ordinary statute, is not changeable annually as experience may dictate:

SECTION 9. Every railroad corporation organized or doing business in this State, under the laws or authority thereof, shall have and maintain a public office or place in this State for the transaction of its business, where transfers of stock shall be made, and in which shall be kept, for public inspection, books, in which shall be recorded the amount of capital stock subscribed, and by whom; the names of the owners of its stock, and the amounts owned by them respectively; the amount of stock paid in and by whom; the transfers of said stock; the amount of its assets and liabilities, and the names and place of residence of its officers. The directors of every railroad corporation shall annually make a report, under oath, to the Auditor of Public Accounts, or some officer to be designated by law, of all their acts and doings, which report shall include such matters relating to railroads as may be prescribed by law. And the General Assembly shall pass laws enforcing by suitable penalties the provisions of this section.

Sec. 10. The rolling stock, and all other movable property belonging to any railroad company or corporation in this State, shall be considered personal property, and shall be liable to execution and sale in the same manner as the personal property of individuals, and the General Assembly shall pass no law exempting any such property from execution and sale.

Sec. 11. No railroad corporation shall consolidate its stock, property or franchises with any other railroad corporation owning a parallel or competing line; and in no case shall any consolidation take place except upon public notice given, of at least sixty days, to all stockholders, in such manner as may be provided by law. A majority of the directors of any railroad corporation now incorporated or hereafter to be incorporated by the laws of this State, shall be citizens and residents of this State.

Sec. 12. Railways heretofore constructed, or that may hereafter be constructed in this State, are hereby declared public highways, and shall be free to all persons for the transportation of their persons and property there-

on, under such regulations as may be prescribed by law. And the General Assembly shall from time to time pass laws establishing reasonable maximum rates of charges for the transportation of passengers and freight on the different railroads in this State.

Sec. 13. No railroad corporation shall issue any stock or bonds, except for money, labor, or property actually received and applied to the purposes for which such corporation was created; and all stock dividends and other fictitious increase of the capital stock or indebtedness of any such corporation shall be void. The capital stock of no railroad corporation shall be increased for any purpose, except upon giving sixty days' public notice, in such manner as may be provided by law.

Sec. 14. The exercise of the power and the right of eminent domain shall never be so construed or abridged as to prevent the taking by the General Assembly, of the property and franchises of incorporated companies already organized, and subjecting them to the public necessity the same as of individuals. The right of trial by jury shall be held inviolate in all trials of claims for compensation, when in the exercise of the said right of eminent domain, any incorporated company shall be interested either for or against the exercise of said right.

Sec. 15. The General Assembly shall pass laws to correct abuses and prevent unjust discrimination and extortion in the rates of freight and passenger tariffs on the different railroads in this State, and enforce such laws by adequate penalties to the extent, if necessary for that purpose, of forfeiture of their property and franchises.

Cincinnati, Lebanon & Delaware Railroad.

MEETING AT XENIA.

There was an enthusiastic meeting on the 20th of this month, at the Court House in Xenia, to consult upon the interests of that city in reference to the line of railroad which it was proposed to construct from Delaware to Cincinnati, and also to ascertain the feeling (pecuniarily and otherwise) of the citizens of the city and county in reference to said road.

Gov. A. G. McBurney, of Lebanon, said that a charter for the road has already been obtained from Cincinnati to Delaware. He took it for granted that the people of Xenia understood the advantages of railroads. Xenia already has two—one opening communication with the East, another with the West; but fortunately both of these are under the control of one corporation, a gigantic corporation, reaching out in all directions, and striving to get everything in its hands. You already feel the power of this monopoly; you know how it operates. Now the question is, what can be done to give the people some of the advantages of railroading, as well as a great monopoly?

Now as to the advantages of the proposed route. It is, first, 28 miles nearer by it from Columbus to Cleveland than is any other. One great object in railroading is to run roads over the straightest possible line, bearing to or away from points according as they give greater or less assistance. The road will cost \$10,000 per mile. The road shortens the distance from Springfield to Cincinnati, if it goes by Xenia, to 71 miles—a saving of 13 miles. From Xenia down, there is but one bend—a loss of a mile—so that the saving from Xenia to Cincinnati is 12 miles. Now do you need a road of this kind? Undoubtedly you do.

You all remember the old Cincinnati, Lebanon & Xenia Railroad. At the time it was projected there was a great Railroad fever all over the West. The people of Lebanon expected to build that road with \$139,000 cash, and some real estate subscription; and it was actually put under contract, the contractors agreeing to receive the rest of the cost in bonds of the road. Of course, that was a failure; the contractors failed; and in 1864 the road went into the hands of a receiver, was put up to sell, and purchased by the Little Miami Railroad. They bought it simply to prevent the road being built. This sale was eventually set aside. Last September it was sold again for \$4,000—forty of our citizens giving \$100 apiece to purchase it.

Then a company was organized to build a road under the name of the Cincinnati, Lebanon & Delaware Railroad Company. To this company the 40 citizens referred to have denied the right of way. The old company failed, but it graded the road two-thirds of the way from Lebanon to Sharon. Railroad men say this work, as it stands, is worth \$150,000. Lebanon has raised \$50,000 by subscription. Books have been opened for subscription at Lockland and other points. Now we want Xenia and Springfield and other points to take interest in the road, and then Lebanon will do still more; will do all that is required of her.

Where will this road enter Cincinnati? I answer, upon the Cincinnati & Marietta road, which we will connect with on good and reasonable terms about 6 miles out of Cincinnati. This will give us the use of the finest depot in Cincinnati. All that thing will be definitely settled before we go on with the work.

Now, will this road pay? Well, the Little Miami has been leased out, at a semi-annual dividend of 8 per cent., upon a capital stock of \$8,000,000, which is much more than the road is worth. Our road will be just as good a one as that. It will run through as rich a country; pass by as many flourishing and rising towns, and have eventually as large a through business.

As to the question of the road increasing the value of property, I ask you to look at what the roads you already have have done for you in that respect. Give but a small portion of the consequent increase in value of your property, and the road will be built.

Gov. McBurney then told about the Springfield meeting.

There ought to be a survey from Springfield to Waynesville, to meet the Lebanon survey.

The speaker then discussed the probability of the New York Central Company taking charge of the road after it is graded, and making it a part of their line for entering Cincinnati. It is exactly the most practicable route for them, and it we survey the whole route and lay it before Commodore Vanderbilt, I doubt not it will strike him in the most favorable light.

An Executive Committee has been appointed at Springfield, to take charge of the interests of that place, in reference to this road.

A Committee of Correspondence, consisting of one from each county, was also suggested at the Springfield meeting, and the Speaker hoped its organization would be perfected.

Gen. McBurney spoke of the Stillwater Valley road, which would in all probability connect with this road at Lebanon.

Mr. J. W. King, of Xenia, said he paid \$45 per car to carry his powder to Cincinnati. If he could save one fifth of that amount, it would be \$450 per year, for he sent one car load per

week. When we go to Cincinnati the new road would enable us to take an hour's time, going and coming. Such things as these appeal to us all. Mr. King illustrated the additional charges to which people are subjected, who have but a single line of road to depend upon.

Mr. David Egbert, of Lebanon, described the disadvantage under which Lebanon labors for want of a railroad.

Gen. McBurney spoke of the fact that Xenia is a little out of the straight line, and must bestir herself, and give enough to pay for the deflection, else the road may be built, and Xenia left out in the cold.

Mr. Drake, of Lebanon, dilated upon the moral effect of railroads upon a community, giving the members of such community fresh life and energy and vigor and strength. He illustrated that by a number of anecdotes. Lebanon had not been revived and roused up, to a degree, even by the talk about a railroad which had been heard there recently.

The Committee on Nominations reported the following for members of the Executive Committee: Messrs E. R. Stewart, J. W. King, Daniel McMillan, Eli Millen, Daniel Martin. For members of the Corresponding Committee for Greene, M. C. Allison.

At Mr. McMillan's suggestion, his name was dropped; that of D. N. Harbison put in his place, and L. Arnold added to the Executive Committee.

Mr. J. W. King offered a resolution that Xenia will do her share in hearing the expenses of the survey. Adopted.

Mr. C. M. Nichols, of Springfield, said he felt authorized to pledge Springfield to pay her share of the preliminary survey. He had no doubt she would do her share also in building the road. He suggested that the committee estimate as quickly as possible the cost of the road, and make an assessment upon each of the counties through which it is to pass, so that each can go immediately to work.

Mr. Hilliard said there is danger that a different line into Cincinnati will be agreed upon by the Eastern roads interested, and, consequently, action should commence at once.

A question was asked as to the cost of the preliminary survey, about which there seemed to be a wide difference of opinion, the answers varying from \$1,500 to \$4,000.

On motion of Mr. McMillan, Mr. E. W. Woodward and R. M. Shoemaker were recommended to the Executive Committees as being either of them a suitable person to make the survey.

The meeting then adjourned, Gov. McBurney stating that a similar one will be held in Lebanon, to-morrow.

The people along the line of the proposed road seem to be in real earnest about the matter. There is no doubt that those of Xenia, especially, are alive to the importance of their town being a point upon the line, provided it is to be built. But their interest must take a material direction, and they must not think of raising less than \$150,000 for the new road.

That they can do this there is little doubt. The question is, will they? There is much wealth in Xenia and vicinity. A large share of it is in the hands of a comparatively small number of individuals, and heretofore these have not been specially credited with enterprise or public spirit. The C. L. & D. Railroad furnishes them an opportunity of showing that they have been unappreciated and misunderstood.

Pacific Railroad of Missouri.

The Twentieth Annual Report for the year ending February 28, 1870, is as follows:

GROSS EARNINGS FOR THE YEARS 1870 AND 1869.

	1870.	1869.
From passengers	\$1,399,363 24	\$1,307,357 31
From freight	1,699,016 83	1,676,469 16
From U. S. Express Co.	62,640 85	62,715 32
From mails	52,037 52	45,049 92
Total	\$3,213,058 44	\$3,091,591 71

Net increase..... \$119,939 68

Gross earnings for the year.....\$3,213,058 44
Less operating expenses..... 2,318,713 62

Net earnings..... \$894,344 82

Operating expenses, 1869 (percentage) \$72 16
Operating expenses, 1868 (percentage)..... 63 49

The operating expenses for 1869 apparently exhibit an unfavorable comparison with the previous year, 1868. It is not so in reality.

The difference is accounted for in the purchase of new iron and ties, exceeding similar purchases made during the year 1868, and amounting in the aggregate to \$240,000.

Equalizing these accounts, the comparison would stand as follows:

Operating expenses last year, 1869 (per cent) \$64 90
Operating expenses previous year, 1868 (per cent)..... 63 40

Gross earnings of the Missouri River Railroad (26 miles between State line and Leavenworth) for ten months, ending 31st December, 1869, were:

Passengers..... \$41,570 53
Freight..... 20,127 36
Mails..... 2,166 60

Total..... \$63,864 49

Gross earnings of the Osage Valley and Southern Kansas Railroad (between Tipton and Bonville) for the year ending 28th February, 1870, were:

Passengers..... \$19,816 75
Freight..... 8,240 03

Total..... \$28,056 78

At the date of the last annual report, the change in the gauge of the road, at an early day, was in contemplation. The undertaking was regarded as one of serious moment, involving, as it necessarily must, a break in the business of the road, and a protracted derangement in its operations. The labors and responsibilities involved in this change were, after being duly considered, undertaken and successfully carried through, in July last, within the time contemplated when the matter was under consideration. The cost of changing the gauge of track amounted to, as follows:

Eastern Division..... \$34,078 47
Western Division..... 15,566 53
Boonville Branch..... 1,286 95
\$50,931 97

Average cost per mile, east and west divisions, including Boonville branch and thirty-six miles of sidings, \$137 84. This may be regarded as satisfactory in its cost, as it was prompt and successful in execution.

The total cost of the change of gauge for labor and material in the machinery and track departments, up to February 28, 1870, amounts to \$208,646 90.

A committee appointed to investigate the matter of the several leases of other roads by this company report very unfavorably upon them all, and conclude as follows:

"In conclusion, your committee express their belief that it would have been just and proper that the stockholders of the Pacific Railroad should have had opportunity to express their opinions and wishes upon these leases the same as was accorded to the stockholders of the Missouri River Railroad, and, in fact, so carefully guarded were the interests of the stockholders of the Missouri River Railroad by their faithful Directors, that for want of their acquiescence with their first lease it was cancelled, and in its stead another lease was forced upon the stockholders of the Pacific Railroad, without their consent, of far more burdensome character. They would also express their opinion that the actions of the Board of Directors of the Pacific Railroad Company did not evince an anxiety to consult with the stockholders, inasmuch as the effort made to obtain the sentiment of the stockholders upon the last and present lease was negated by the Board of Directors in the most emphatic manner."

Railroad Law.

[From the American Railway Times.]

BALTIMORE, May 10, 1870.

Messrs. Editors:—Your leading editorial of April 23 contains the following, which is its topic:

"At Baltimore, in the Superior Court, April 14, a verdict for \$30,000 was given for Asher Levy for injuries sustained on the Baltimore and Ohio Railroad; also for compensation for loss of a wallet containing \$7,700."

Your informant must have intended a jest at your expense. The only fact in the statement is that Ash (not Asher) Levy sued the Company for damages alleged to have been sustained by him in consequence of an upset on the road, caused by the breakage of a wheel that had been tested and found perfect at the last station; and the verdict was for the defendant! The Court instructed the jury that the loss of the pocket-book, even if the jury believed that the plaintiff really lost one, which was not by any means admitted, was too remote a consequence of the accident to be considered in making up the verdict.

It seemed that Levy kept his loss to himself, had made no mention of it to the agents of the Company, who tended him kindly till he was able to travel, which was in a few days, and only proclaimed it after consultation with his counsel some time afterward, which led the court to say that, had the preceding point not been ruled against the plaintiff, this fact alone would have been fatal to the pocket-book part of the case, inasmuch as it was his duty to state his loss as soon as he discovered it, which was within the hour, so that the Company could have an opportunity of making a search that might have found it.

The Court, then as to the general claim, instructed the jury substantially that if they found the road to have been in perfect order, the machinery unexceptionable, the parties in charge of both properly qualified and using all diligence, that the speed was reasonable, and that the accident resulted from the breakage of the flange and part of the tread of a passenger car wheel which had been tested

and found perfect at the last station, then the plaintiff could not recover; and the Court told the jury that there was no evidence that the accident had any other cause than the breakage of the wheel.

In delivering this opinion, the Court (Dobbin, J.) carefully reviewed the law upon the subject, both in England and the United States, and took occasion to say that if the defendants chose to take the risk,—which they had done in the hypotheses of their prayer for instructions,—and, enumerating all possible causes whatever of accident, to assume the task of satisfying the jury that they had done all that human foresight could do to provide against each and every one of them,—that, if the defendants were willing to do this, it was unreasonable not to permit them to exonerate themselves by proving the facts on which they relied. Negligence, the Court said, was a mixed question of law and fact. It was for the jury to find the facts. It was for the Court to say whether they relieved the defendants from the charge of negligence in law. If all the facts stated hypothetically in the defendants' prayer were true, then there was no negligence. It was for the jury to say whether they were true or not.

The jury found them to be true, and they gave a clean verdict for the defendant. The case was one of unusual interest, and was thoroughly contested. How it came to be reported to you as it has been—can be explained in no other way than that the reporters intended an ill-timed jest at your expense. As your editorial, as it stands, however just its reflections are, is calculated to do injustice by a misstatement of facts, it is asked most respectfully that this notice may be inserted in your columns.

Very respectfully,
JOHN KING, JR., Vice President.

The Mineral Wealth of Virginia and West Virginia.

The iron deposits in Virginia and West Virginia are equal to, if not more extensive than, those in Pennsylvania. Along the line of the Chesapeake and Ohio Railroad are found inexhaustible deposits of superior iron ore. From Staunton, Va., to the White Sulphur Springs in West Virginia, a distance of one hundred miles, there are very large quantities of valuable iron ore. Also along the line of the James River Canal, west of Lynchburg, is found superior iron ore in great abundance.

In fact, the entire Alleghany range of mountains, in both Virginia and West Virginia, extending 350 miles, from Maryland to Tennessee, are filled with iron ore, in quantity and quality equal to the most valuable deposits found in Pennsylvania—the largest quantities being found east of the main Alleghany range of mountains and west of the Blue Ridge.

West of this vast area of iron ore deposits is to be found the Appalachian Coal field of West Virginia, which, in extent, is greater than the coal field of Pennsylvania. For the coal field of West Virginia is estimated to contain 15,900 square miles, while that of Pennsylvania is estimated to contain 12,656 square miles. The coal area of Great Britain is estimated to be 11,859 square miles.

The Chesapeake and Ohio Railroad and the James River and Kanawha Canal (when completed to the Ohio River) will pass through the very heart and center of the coal and iron deposits of Virginia and West Virginia. These improvements will pass through New

River Valley, and the great Kanawha Valley, to the Ohio River, a distance of two hundred miles, cutting at right angles, the most extensive deposits of cannel, splint, and bituminous coal known in the world, the coal remarkable for its superiority in generating steam, smelting iron ore, and making gas, and unsurpassed as a fuel.

Thus, in Virginia and West Virginia, and especially along the line of the Chesapeake and Ohio Railroad, and the line of the James River and Kanawha Canal, are to be found in great abundance and of superior quality two great elements of a nation's wealth—coal and iron.

Not long since, Mr. Gladstone, in a speech delivered in the English Parliament, said the commercial prosperity of Great Britain over all other countries was chiefly owing to her coal deposits and their location near iron ore—the coal and iron in close proximity to each other, constituted the substratum of England's commercial prosperity.

The same may be said of Pennsylvania. It is the development of the coal and iron of that State, that constitutes the basis of her wealth and power. And what has been done in Pennsylvania may be done in Virginia and West Virginia, and even to a greater degree. For the deposits of coal and iron are more numerous and varied, and more favorably located for a thorough development by means of Virginia's central water line and railroad, uniting the great West with the Atlantic seaboard—*Wall Street Journal*.

Lyceum of Natural History.

Prof. J. L. Newberry read a paper on the "Ancient Lakes of Western North America, their Deposits and Drainage." The topographical changes of the western part of the continent have been extensive, and have deeply affected the animal and vegetable life once flourishing in regions now desolate. The tertiary deposits of the Atlantic slope, and some in the region of the Sierra Nevada, are marine; but the vast inland basins contain tertiary fresh water deposits, containing fossil plants in great numbers, and a remarkable series of animals remains. Among these the speaker mentioned two species of rhinoceros, the elephant, various horses, and the sabre-tooth cat, the tooth of which measures, in one specimen, eight inches outside of the jaw, the most formidable tooth of an animal of which we have any knowledge. These tertiary deposits of the West are made in fresh water basins, in a region were almost no fresh water basins can now be found.

Almost everybody going to California talks about chalk deposits. Following in the old emigrant train you will see various slabs of this chalk-like earth set up for grave-stones. These infusorial beds are portions of these fresh water deposits. On the western side of the Rocky Mountains the deposits are similar, and are rich in diatoms. The fauna are interesting. On the east side of the Rocky Mountains the tertiary deposits have been but little studied, although I have paid some attention to them. There are many beds along the upper waters of the Missouri. The banks of the Deschutes or Fall River, a tributary to the Columbia, show strata of volcanic ashes, "chalk," and beds of columnar basalt. The basalt frequently overlies the sedimentary beds.

The rivers of the inland basin run through a sort of table lands comparatively level, in which they have cut down deep canons, the

walls of which are sometimes 1,200 to 2,000 feet high, and nearly vertical. The conclusion to be drawn is that on both sides of the Rocky Mountains there was at one period vast fresh water lakes, covering an area many times greater than our present lakes (Superior, Michigan, etc.). The climate of the period was sub-tropical, and the fauna more abundant than in any part of the world at the present time. In that well-watered age, men lived, and vegetation luxuriated even in Greenland.

The great Salt Lake basin represents a series of such lakes, anciently fresh, but now salt, because of the lack of drainage. A large part of this basin now consists of alkaline plains, carried by the drainage from the mountains, the streams of which dissolved various salts in their course, and left them in the basin by evaporation. The central portion of the inland basin is not drained; but to the north and south the drainage by the Columbia and Colorado and their tributaries is good. The water must at one time have stood some four thousand feet higher than it now does. At the bottom we have the deposits of these deep fresh waters. Their ancient outlines can still be easily traced.

The Rocky Mountains are older than the Sierra Nevada, and were originally the coast range, the latter being under the ocean. The emergence of the Sierra made fresh water lakes in the central plateau, the drainage for a time flowing north and south between them. This is the period of the fresh water deposits. On the east of the Rocky Mountains these lakes reached from Texas far to the north, giving us immense fresh water formations, of which our present lakes are but miniature representations. As the drainage was cut off from the central basin, and the annual rainfall decreased, the undrained lakes became salt, and shrunk until the annual evaporation balanced the annual supply. This is now the case; and Salt Lake, though subject to minor fluctuations, is on the whole drying up.—*Engineering and Mining Journal.*

—The school teachers of San Francisco have arranged for an excursion to New York by rail, leaving that city on the 28th instant.

—Ten feet a day is reported to be the average progress made in the Hoosac Tunnel, and they keep boring away.

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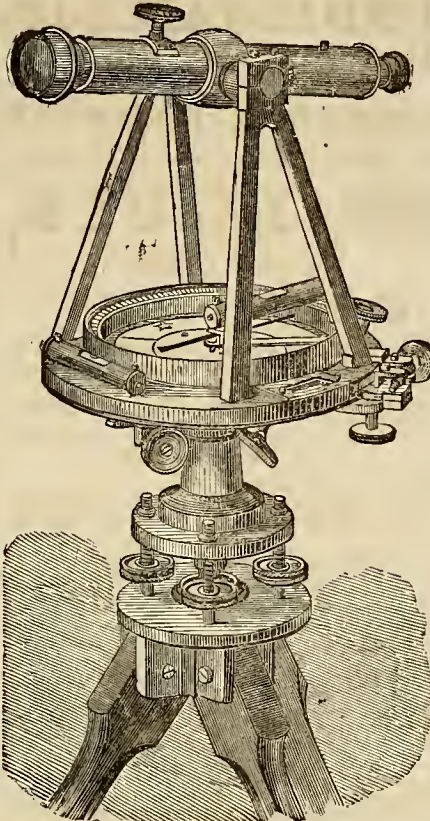
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Through Western Express.....	6:10 P. M. 8:30 P. M.
Night Express.....	10:20 P. M. 6:00 A. M.

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Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	8.40 pm	7.35 am
*St. Louis and Springfield Express. 10.20 pm	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.50 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

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Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

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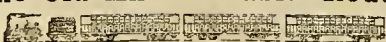
	DEPART.	ARRIVE.
Eastern Express (Erie Railway)....	7:00 A. M.	6:30 P. M.
do do do do	9:45 A. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do do	6:30 P. M.	7:30 A. M.
Lima, Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do do	6:30 P. M.	5:40 P. M.
do do do do	2:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do do	5:00 P. M.	1:20 P. M.
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do do do do	5:00 P. M.	10:20 A. M.
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do do do do	6:50 A. M.	

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Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckhannock &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittsburg, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Lititz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:00 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburg, and the West, connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15 8:15, 8:30, 9, 9:20, 10:30, 11:30 a. m.—12 m., 1:00, 2:00 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:22, 7:40, 8:00, 9:00, 9:30 10:35, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 234, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKETT, Superintendent.
H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, } Editors
T. WRIGHTSON, }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JUNE 2, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
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WRIGHTSON & CO., Prop'r's.

Railroad Approaches to Cincinnati.

One of the misfortunes of cities and States, in our country, is that they do not foresee their own future. They make no defined plans of how things are to be done in the future. Hence, there is a great waste of money and a waste of time. Things have to be done over again; not only that, but some things have to be totally destroyed. Here in Cincinnati we have gone through four generations of water works, and full as many of pavements; and to-day we are contriving new modes for each. But the most obvious and palpable want of system or forethought, is in our railroad approaches and depots. Not one railroad enters Cincinnati but it passes through miles of houses, trains of cars, pig pens, roads, bridges, in fine, every sort of obstruction and disagreeable thing. But the disagreeable is nothing. Look at the danger and inconvenience, and extra expense. It was not foreseen that Cincinnati must have twenty railroads, and that there was no possibility of getting along comfortably or cheaply with the various outlets on Mill Creek and River bank. It was not foreseen that the Ohio River must be bridged. It was not foreseen that the railroads would do such an immense business that ordinary depots would not answer. It was not foreseen that the routes naturally taken by the railroads, because they were apparently the cheapest, were in fact the dearest. Much of this we stated in the RECORD years ago; but it was not heeded, and now the railroad companies are beginning to enlarge their ideas and pay out mil-

lions, when twenty years ago only thousands were required. But they will pay millions, and they will go where they ought to have gone in the first place. This is the inevitable. We are reminded of it by seeing the abutments and stone work of the Newport and Cincinnati Bridge going up. The abutments are now going up on Front street, which is to be arched over, and the bridge approaches to be carried on till it is possible to move the rail cars on it. Now this is a difficult operation, and a very expensive one. When the Little Miami Railroad was made, every foot of ground within a square of Deer Creek should have been bought, and room got for an immense depot. The depot has been rebuilt and enlarged twice, but is not half large enough now. We are told that the Pennsylvania Company, which now owns the road, have bought the ground west of Deer Creek, where the Niles' works now are, for a new passenger depot, and undoubtedly something of that sort must be done to relieve the present depot, and afford convenience for passengers.

The present depot is nothing but a great lumber room, filled with cars and boxes, and surrounded by every possible cart, wagon and carriage. In fact, the manner in which passengers have to get on the L. M. cars is disgraceful. Everything is packed, jammed and dirty; but that is of less importance to the Company than the question of how they can transact their business there. It will be very difficult for them to get on to the Newport Bridge without a heavy grade; but, suppose the railroad connection with the Chesapeake and Ohio be made, where is it to come in? It may, by a judicious arrangement, foreseen and acted on in time, have a much better arrangement than that of the Little Miami. It can only be done in one way. This is by keeping above the present railroad and turnpikes, winding round into Deer Creek Valley, and coming in on the upper plain of Cincinnati, and that would give it a decisive advantage, and in the end cost much less than what the Little Miami is now compelled to do.

On the west side of the city the case is no better. The Indianapolis and Marietta roads do very well, when they once get to the heart of the city, in their depot. But how do they get there? On Mill Creek, and especially west of Mill Creek, it is confusion confounded. Crossing streets, turnpikes, railroads, on every side, there is one great miracle present with us, that is, how people escape every day and every hour from being killed. It is marvellous.

The Baltimore and Ohio road is preparing a new track, and for once we see a little foresight and common sense used. They are coming, we are told, on the east side of Mill Creek, and there only can they come conveniently.

We are told of another road coming in, the

Straight Line from Springfield to Cincinnati, in the interest of the Cleveland and Columbus road. Where is that to enter the city? This raises a question which has often been discussed in the RECORD; and our views upon which are continually returning to us, with increasing force. It is this: Sooner or later the railroads from the east and north of the city must come through a tunnel in the hills. This may be delayed, but can not be prevented. It is a final result, absolutely necessary to the city and the railroads.

Let any one look at what has been done in London and New York, by the absolute necessities of railroad conveniences, and he will get an idea of what must be done in Cincinnati. We will give some reasons for the tunnel, which will be imperative with those who reflect:

1. Where is the center of Cincinnati population, and where will it be twenty years hence, and how is it to get to the railroads? We hazard nothing in saying that the central line of population in Cincinnati has already gone north, as far as the canal, and it is certain that in ten years it will have reached the foot of the hills. In ten years, half the population of Cincinnati will have ascended the hills. Forty thousand people are there now. How will those people get to the railroads? Has any one thought of this? Won't it look very fine, and be very convenient, to have the passengers taken to and from the mouth of Mill Creek and Deer Creek, when they live two or three miles from those places, and that up hill? They must spend nearly an hour, and half the price of railroad fare, when they are going an hundred miles, in order to get to a depot which is in the most uncomfortable and disagreeable part of the city. It is plain that will not be done long. They are now making a Straight Line Railroad from New York to Boston, at an immense expense in order to save one hour; and will an hundred thousand people on the hills lose an hour to get to the depot without complaining?

2. The reason is yet more imperative in regard to freights. Cincinnati is not merely a place of transit, it is a place of immense consumption of food and merchandise. This merchandise must be carried all over the city. How much will drayage and handling cost when it has to be carried, not from a central point, but from the very extreme on one side? The extra cost of that freight, which will be a tax on the whole city, will pay for two tunnels.

3. Let us now suppose the northern hills tunneled, we will say on the route originally proposed and partly executed, and a track laid to Sharon, what will be the practical result? At the north end of the tunnel, which will be and is within the city, and surrounded by a large population, there will be a station for all the upper population of Cincinnati, that will within a few years be the largest

part, and they will reach the city quick, cheap and convenient. At the southern end—head of Broadway—will be another station, which will accommodate the people on the upper plain of the city. Thus the tunnel will make the railroad outlets cheap and convenient to the whole people. Do you ask, what railroads will use it? All will use it which come from the North and the East, simply because they must, or be subjected to great disadvantages in comparison with those who do. We have said this much because it is time that Cincinnati had a plan, and that the railroads had some other than a mere make-shift policy.

Cincinnati Industrial Exposition.

The Chamber of Commerce, the Board of Trade and the Ohio Mechanics' Institute, have united in arrangements for a grand Industrial Exposition, to be held in September next. The Exposition is to commence Wednesday, September 21, 1870, and is to be open for the reception of goods on September 1st. The Board of Managers, appointed by the three institutions above named, in their circular say:

On behalf of the Chamber of Commerce, the Board of Trade and the Ohio Mechanics' Institute, under whose joint auspices the Exposition will be held, we cordially invite manufacturers, mechanics, artists, agents, inventors and others to contribute specimens of their skill, ingenuity and taste to this grand Exposition, and make it a true index of our Nation's progress in the march of civilization.

It is the earnest desire of the managers to make this exposition of art and industry superior, in point of attraction and practical benefit to all concerned, to any display of a similar nature which has ever been held in this country. We therefore call upon all who are interested in the success, prosperity and continued improvement of our domestic industry, to co-operate in an united effort to make this Exposition a grand success.

It seems almost unnecessary to present any arguments to show the great advantages of these periodical Expositions; all are alike interested in their success and maintenance, and the experience of past exhibitions, in all parts of the world, furnish the most conclusive evidence of their great value as a stimulus to art and mechanism. They may be regarded as a direct incentive to emulation on the part of every artisan and producer, which will invariably be followed by a corresponding increase in prosperity, and in view of which we confidently anticipate a generous response and a hearty co-operation from all. In order to give accommodations which will be commensurate with the demands that will assuredly be made upon us, we will erect a commodious exhibition building, upon a scale far exceeding anything of the kind yet erected for a similar purpose.

Steam power will be provided, that machinery of all kinds may be seen in actual operation, displaying the advantages and capabilities of various machines under one view, and thus testing the invention or workmanship of the various machines in the most perfect and interesting manner.

Exhibitors from different sections will find Cincinnati the most favorable location in the West. Our noble river, and the different railroads that radiate from the city in all directions, afford ample facilities for the transportation of articles.

We again, therefore, invite them to use this Exposition as a valuable means of introducing their productions, assuring them that they will here find generous competition and an appreciating public.

The exhibition is not intended to be in the least degree exclusive as regards the character of the articles to be exhibited. We hope to see art and mechanism fully represented in all its various branches; also, the products of the soil and mines. And we also trust that the ladies will grace our exhibition, not only with their presence, but also with an appropriate display of their handwork. A Committee of Ladies, auxiliary to the Exhibition Committee, will be appointed in due time, who will take especial charge of such handwork and see to its proper arrangement for exhibition, and also to the appointment of judges to that department.

The most ample arrangements will be made with the various railroads, steamboats and other lines, to transport visitors and articles intended for the Exposition at the most favorable rates, full particulars of which will shortly be published.

In conducting the Exposition, the Board of Managers pledge themselves to exert the utmost diligence and care to satisfy both depositors and visitors.

The premiums and awards will be of the most ample character, both in number and quality.

It is very desirable that all parties intending to contribute to this Exposition should give early notice of the articles, amount and kind of space required.

Any information will be promptly given by addressing the Secretary of the Cincinnati Industrial Exposition, who will furnish the rules and regulations, and also blank applications for space,

CHAS. F. WILSTACH, President.

ABNER L. FRAZER, Secretary.

New Music.

"Bonny Jean" is the title of a very pretty song, words and music by Mrs. A. H. Edwards. The same authoress has also contributed another piece, entitled "Thou Can'st Not Forget Me;" the words are by Rosa V. Johnson, and are very pretty and sentimental. The music is above the ordinary grade. "Come Like a Bird to thy Nest," is among the sweetest pieces we have had for some time. The air and accompaniment by C. T. Donore, are both good; the words are by Geo. Cooper, and are as sweet as the title of the piece. The "Snow Bird Polka," by J. M. Chadwick, possesses the merit of being both very easy and very pretty. The "Sunflower Medley," by Lindsay Lee, is an instrumental comic piece, introducing several comic pieces of which the "Big Sunflower" is a type. The above were furnished us by and can be had of John Church & Co., who keep always a full supply of the latest music.

Tennessee Railroads.

The State of Tennessee has made great efforts to develop her resources by aiding liberally in the construction of railroads. The state of financial integrity, however, developed by the following report made to the State Senate, on May 21st, is well calculated to provoke legislation unfavorable to any further State aid to new enterprises. Indeed the finances of the State would seem to demand a contraction rather than an expansion of its railroad liabilities.

TENNESSEE AND PACIFIC RAILROAD.

Mr. Clementson, Chairman of Joint Select Committee on Railroad Investigation, submitted the report of the Committee on the Tennessee and Pacific Railroad, which report was received and ordered to be transmitted to the House. The Committee find by record in the office of the Secretary of State that there have been issued to said road eleven hundred and eighty-five dollars in the bonds of the State, being 1,185 bonds of \$1,000 each, 300 of which bonds were issued in accordance with the act of May 24, 1866. The others were issued under an act passed Dec 7, 1867.

The report shows that the 1,185 bonds mentioned were received by Gen. George Maney as President of said road, and that 953 of them have been hypothecated as security for loans negotiated for construction and equipment, and that the remaining bonds are in possession of the company. That 29½ miles of road are prepared for iron, and track is now being laid; that no work had been done when the first State bonds were issued, but that \$51,000 of individual stock had been subscribed and \$600,000 in county subscriptions; that the 953 bonds were hypothecated for loans falling due—\$293,546, July 1, 1870, and \$30,000 26th May, 1870, and to be paid before the 923 bonds can be released; that \$16,000 of individual stock has been paid in, and that \$300,000 in bonds of Davidson, Wilson and Smith counties, each, have been subscribed. In conclusion, the report says: "The committee would respectfully call the attention of the Legislature to the very limited security the State has for the large amount of bonds issued to said road—\$1,185,000. * * * The Committee would suggest that it is highly important that some legislation should at once be enacted that would protect the large interest of the State in said road, and secure the State from very great impending loss."

EAST TENNESSEE AND WESTERN NORTH CAROLINA RAILROAD.

Mr. Clementson also submitted the report of the Committee in regard to the East Tennessee and Western North Carolina Railroad, showing that \$400,000 in the bonds of the State had been issued to said road.

KNOXVILLE AND CHARLESTON RAILROAD.

The report of the Committee relative to the condition of the Knoxville and Charleston Railroad was also received and ordered to be transmitted to the House. The report shows that 710 State bonds—\$1,000 each—have been issued to said road, most of which have, in disregard of law, been sold for less than their par value; that all its property is worth about \$574,250—\$135,745 less than the principal debt of the State. The Committee recommend such legislation as may be best deemed to secure the State against the danger of further loss.

Vicksburg, Decatur and Cincinnati R. R.

Let the reader place before him a map of the Southern States, draw an air line from Cincinnati to Decatur and from Decatur to Vicksburg, and follow it with a full knowledge that at Cincinnati can now be concentrated the entire Manufacturing Agricultural and Mineral products of all the country east of the Missouri River and North of the Ohio and West of the Atlantic seaboard, at a very low rate of freight and in the shortest possible time, this, with the local advantages, large capital and indomitable energy of her large population, if sustained by proper facilities, will give a large impulse to all business at Cincinnati.

The Mississippi River delivers at Vicksburg the Rice and Sugar from Louisiana, and from New Orleans the entire products of the Gulf Coast and Islands. By the Southern Pacific now nearly completed to Dallas, Texas, the entire products of Texas can be concentrated at Vicksburg, which in Cattle and Wool alone (produced at half the cost of any other part of the United States), would give a heavy through business to a railroad. By locating this line as proposed, it would draw to it more of the Kentucky, Tennessee, Alabama and Mississippi products than any other proposed route. It runs on the North Western slope of the Alleghany Mountains to Aberdeen, Miss., so as to avoid tunnels, deep excavations and high grades, and approximates closely to an air line. It will be the first and nearest lines to the Atlantic cities that will be reached by the entire web of roads working through the Alleghany Mountains, to reach the valley of the Ohio.

At Decatur it connects in direct air line with Memphis, El Paso and San Diego, and through East Tennessee with Washington City, through Montgomery with Mobile, Pensacola, Brunswick, Savannah and Charleston, and with the interior of Alabama, Georgia and South Carolina. There is no line of equal length in the United States having so wide a belt of equally productive country, at once opening the heart of the Cotton, Corn, Wheat, Tobacco and Stock region.

The climate is such that white labor can work the year round. The land is cleared, and there are good country roads, school houses and churches, but not half enough labor on any part of it to cultivate the cleared lands. The local business on this route will exceed that of any other road in the United States. The through business can, from both termini, be increased to an indefinite extent.—*Am R. R. Jour.*

Cincinnati may well exclaim, with Burns:

"O wad some Power the giftie gie us,
To see oursel's, as others see us
It wad frae monie a blunder free us
An foolish notion."

—Work on the Michigan "Air line,"—which is to say—the Jackson and Niles cut-off—seems to be progressing very rapidly. The *Cassapolis Democrat* says the April payments to the men on the line amounted to \$100,000. This indicates that a large amount of work is being done on the project.

—A committee from Ionia visited Kalamazoo on Thursday of this week in the interest of the railroad to Ionia and Saginaw. The only new feature developed is in this, that the route proposed is by way of Middleville to Martin Corners or to Plainwell.—*Kalamazoo Gazette.*

Railroad Orders.

FORT WAYNE, Ind., June 1.

"OFFICE OF CONTINENTAL IMPROVEMENT CO., }
PITTSBURG, PA. }

GENERAL ORDER NO. 1.

"By authority of the President of the Continental Improvement Company, I hereby appoint Charles E. Gorham Superintendent of the Indiana Division of the Grand Rapids and Indiana Railroad, to take effect on and after June 1, 1870. All parties interested will confer with him at his office, at Fort Wayne. "J. N. McCulloch, General Manager."

"OFFICE GRAND RAPIDS & INDIANA CENTRAL }
R. R. CO., INDIANA DIVISION, FORT WAYNE. }

GENERAL ORDER NO. 1.

"The following appointments are hereby made on this Railroad, taking effect on and after June 1, 1870: H. D. Wallin, Assistant Superintendent; O. A. Simons, Road Master; James M. Boon, Master Mechanic.

"CHAS. E. GORHAM, Superintendent."

Mr. Gorham continues in his present position as Superintendent on the Fort Wayne road, as do also Messrs. Simons and Boon in their respective official capacities.

The Indiana Division will be ready for business and equipped with rolling stock from here to Sturgis, Michigan, by the 1st of July, if not earlier.

SHARON SPRINGS, N. Y.—We have received the following circular which we publish as of interest not only to railroad men, but to the general public:

THE DELAWARE AND HUDSON CANAL CO.,
ALBANY AND SUSQUEHANNA RAILROAD DEP'T.
OFFICE GENERAL TICKET AGENT,
ALBANY, N. Y., May 30th, 1870.

CIRCULAR.

To General Ticket Agents: In view of the early completion of the Cherry Valley, Sharon and Albany Branch of this road, thereby opening a new and Direct All Rail route from Albany or Binghamton to Cherry Valley, and the Celebrated Summer Resort, Sharon Springs, we beg you that you have Coupon Tickets prepared to be placed on sale June 15th proximo.

Only one Coupon is required from Albany or Binghamton; the following local fares to be reported to the undersigned:

From Albany to
Sharon.....\$2 10
Cherry Valley..... 2.55

From Binghamton to
Sharon.....\$3.70
Cherry Valley..... 4.15

Respectfully,
S. E. MAYO, Gen'l Tkt Agent.

—The Ironton (Ohio) *Journal* learns that a portion of the Eastern Kentucky Railroad, between Hunnewell Furnace and Grayson, has been let, and is to be completed for ties and rails by the first of January next. Also that the contracts will soon be let for a branch road to the famous Lambert ore banks, and another down Tygart to the Ohio River, near Portsmouth. This road forms a link in the line which will connect Louisville with the western terminus of the Chesapeake and Ohio railroad, but it will be necessary to extend it fifteen or twenty miles eastward in order to complete the connection.

Milwaukee & St. Paul Railway.

ANNUAL REPORT FOR THE YEAR ENDING DECEMBER 31, 1869.

The following abstract of the sixth annual report of the Milwaukee & St. Paul Railway we publish as given in the Milwaukee *Wisconsin*:

THE VARIOUS ROADS.

The roads owned by the company are as follows:

	Milw.-
Milwaukee to St. Paul, via Prairie du Chien.....	405
" " to La Crosse, via Watertown.....	197
" " to Portage, via Horicon.....	95
Horicon to Berlin and Winneconne.....	58
Watertown to Madison.....	37
Madison to Monroe.....	43
Calmar to Nora Springs.....	65
Couderc to Decatur.....	10
Mendota to Minneapolis.....	9
Total.....	918

To this must be added the Western Union Division which became a part of the St. Paul since the report was made, and which extends from Racine to Port Byron, a distance of 182 miles, as well as the Eagle branch now building, 16 miles in length, making the total miles of road 1,115. On the first of January, 1869, the company owned 825 miles of road, showing a material increase in the last and present year.

DIVIDENDS.

The directors declared a dividend from the earnings of 1869, payable Feb. 16, 1870, on the preferred stock, of \$7 per share in cash, and \$3 per share in common stock, and on the common stock \$3 per share in cash and \$7 per share in common stock. The dividend so declared increased the capital stock \$828,900 from Feb. 15, 1870, and, of course, adds to that extent to the present cost of the railroad and property owned by the company, making the present cost \$35,370,772, or say \$37,800 per mile.

EARNINGS.

The following table from the report of General Manager Merrill shows the different earnings of the St. Paul road in the year 1869, as compared with those of 1868, showing a handsome increase:

	1868.	1869.	Increase.
Freight.....	\$1,266,281 83	\$4,909,52 02	\$3,643,241 13
Passengers.....	1 695,295 72	1,781,134 77	\$5,439 05
Mail, express &c.....	556,066 10	500,000 89	3,942 79

Total.....\$6,517,645 71 \$7,254,658 68 \$73,022 97

Of these earnings the La Crosse Division shows \$2,331,694 64; the Northern Division \$718,424 39; the Prairie du Chien Division \$2,513,620 70, and the Iowa and Minnesota Division \$1,686,858 35.

EXPENSES.

The report shows the expenses of the company to have been \$4,229,882.11 against \$4,033,040.99 in 1868. The net earnings over expenses were \$3,020,786 57, an increase of \$536,181.86 over 1868. Itemizing these expenses, so that our readers, if they want to build a railroad, may know something of what it costs, we have for repairs of track during the year, \$615,595, bridges, \$34,189, buildings, \$88,901. It cost \$252,931 to repair locomotives, \$407,323 cars, and \$36,738 tools, etc. The St. Paul company spent \$25,000 for advertising, etc., station service cost \$446,553, salaries of conductors, baggage and brakemen, \$212,772, of engineers, firemen and wipers, \$273,171, train and station supplies cost \$102,810, and there was consumed \$566,521 worth of fuel. The items of oil and waste amounted to \$65,328. For personal injuries

\$30,227 was paid, damage to property \$26,580, and loss of freight and baggage, \$6,558. For taxes \$174,300 were paid the State and \$50,191 to Uncle Sam, and \$25,851 for insurance. For new track \$270,583, and for the ferries at the Mississippi, \$126,195. New cars cost \$148,810, &c.

There were relaid 1,480 tons of new iron and 85 tons of steel rails, and 4,765 tons of re-rolled rails during the year, to lay which took 331,823 pounds of splices, 47,558 pounds of chairs, 107,751 pounds of bolts, 334,940 pounds of spikes, and 244,477 cross-ties. One hundred and forty miles of new fence were built during the year.

CONSTRUCTION.

The following are the principal items of construction, none of which are charged to operating account:

Sun Prairie Extension.....	\$176,628 45
St. Paul Branch.....	18,919 02
Decorah Branch.....	116,919 56
Line around Milwaukee.....	163,991 05

ROLLING STOCK.

On December 31st, 1869, the company owned the following rolling stock: Locomotives, 145; first class passenger cars, 71; second ditto, 10; sleeping cars, 9; baggage, mail and express cars, 54; box freight cars, 2,273, and flat and stock cars, 480.

CONNECTIONS.

The report refers at length to the connections of the St. Paul. The McGregor & Missouri River road; the West Wisconsin road; Cedar Falls & Minnesota road; Southern Minnesota road; Hastings & Dacotah road; St. Paul & Sioux City road; St. Paul & Pacific; Northern Pacific; St. Paul & Chicago, etc. Of these, the West Wisconsin road, now operated by the St. Paul Company, is running from Omaha to Augusta, a distance of 66 miles, and will be extended to Eau Claire, a distance of 25 miles, in a few weeks. It is a most important feeder.

The company expects during the present year to receive from the McGregor & Missouri River Company 63 miles of road, from Nora Springs to Algona, Iowa. In addition to these lines, many independent roads, connecting with the St. Paul road, are being extended during this summer, so that President Mitchell estimates at least one thousand miles of connecting lines will be built in the States of Wisconsin, Minnesota and Iowa during the present season.

FREIGHT TRANSPORTED.

During the year 1869 there were carried on the La Crosse and Northern Divisions 398,854 tons of freight eastward, and 140,646 tons westward, a total of 539,500 tons carried.

On the Prairie du Chien Division 500,757 tons were carried, of which 339,183 were eastward and 161,574 westward.

On the Iowa & Minnesota Division 304,101 tons were carried, of which 203,317 were eastward and 100,784 westward.

On the whole road 941,354 tons were carried eastward and 403,004 westward, a total of 1,344,358 carried. A total of 157,749,851 for one mile, at an average of 3 1-10 cts. per mile.

THE PASSENGER TRAFFIC.

During the year the road carried a total of 814,903 passengers, of whom 374,532 went eastward, and 436,371 westward, at an average cost of 3 81-100 cts. per mile.

Of these passengers the La Crosse and Northern Divisions carried 161,121 eastward and 187,830 westward, a total of 348,951.

The Prairie du Chien Division carried 136,

199 eastward and 156,791 westward, a total of 292,990.

The Iowa and Minnesota Division carried 77,212 eastward and 91,750 westward, a total of 168,962.

INTERESTING NOTES.

During the year on the various divisions 916,786 miles were run by passenger trains; 2,063,899 by freight, and 377,874 by wood and gravel trains, a total of 3,388,559 miles run.

It cost 58 per cent. of the earnings per mile to run, or while the average earnings per mile for all run were \$2 35, the average expenses were \$1.40.

The cost of maintaining track and bridges per mile run was 31.7 cts.; cost of repairs on engines 84 cts.; oil and waste 22 cts.

The gross earnings per mile of road were \$3,450 66, and the net earnings \$3,520 73.

COST OF ROAD.

The total cost of the road at the time of the report, January 1, 1870, was \$35,518,338.20, as follows:

	Interest.
Capital Stock, preferred.....	\$9,744,268
common.....	7,695,104
Bonds—First mortgage.....	5,487,000
First E. Division Pal. er mortgage.....	753,000
First Iowa & Minnesota Div.....	3,791,000
First Minnesota Central Railway.....	200,000
First Prairie du Chien Div.....	3,672,000
Sec'd mort. Prairie du Chien Div.....	1,189,000
S. cond mortgage.....	1,315,100
1 c m.....	20,000
Milwaukee City.....	234,000
Milwaukee & Western.....	24,000
Real estate purchase money.....	142,500
Incumbrances assumed.....	46,341

OFFICERS.

The principal officers are as follows: President—Alexander Mitchell, Milwaukee; Vice President—Russel Sage, New York; General Manager—S. S. Merrill, Milwaukee; Secretary and Treasurer—R. D. Jennings, Milwaukee; Assistant Secretary and Transfer Agent—James M. McKim, New York; Attorney—John W. Cary, Milwaukee; Supt. La Crosse and Prairie du Chien Divis.—H. C. Atkins, Milwaukee; Supt. Northern Division—L. B. Rock, Milwaukee; Supt. I. & M. & I. & D. Divis.—D. C. Sheppard, Minneapolis; General Passenger Agent—A. V. H. Carpenter, Milwaukee; General Freight Agent—O. E. Britt, Milwaukee; Auditor—J. P. Whaling, Milwaukee; Paymaster—C. A. Place, Milwaukee; Purchasing Agent—Robert Watson, Jr., Milwaukee.

—The construction of the Kalamazoo and South Haven Railroad seems to hang fire. We have heard it said that the managers are waiting to see what decision the Supreme Court will make on the constitutionality of municipal aid. Again we hear it is rumored that the location of the line on the "Northern route" was obtained by corrupt appliances; and that fact has so outraged those who were cheated, that they are rolling up a cloud of embarrassments, in the way of ugly-law-suits, by which the early completion of the road is likely to be seriously embarrassed. The taking of the line from the settled and improved route, and locating it along the northern Swamps was, in our opinion, a great wrong to the interests of Kalamazoo, and to the projected road itself. Before the work is resumed we would like to see our citizens make an effort to restore the line to the route first intended.—*Kalamazoo Gazette*.

—We are informed that men are at work on all parts of the Grand Rapids & I. R. R. from Sturgis to Grand Rapids, and that the road is to be made all the way on the old line, and the cars are to run over this part before "snow falls."

Charlotte, Columbia & Augusta Railroad.

From the report of the President it appears that the earnings of the road during the year ending December 31, 1869, were:

From passengers.....	\$199,516 94
freights.....	188,765 38
mails.....	14,467 48
minor sources.....	1,035 68

\$403,785 49

And the expenditures were... 226,536 59

Leaving for payment of interest and taxes, and account of Augusta Division..... \$177,248 90

The stockholders of the Charlotte and South Carolina and Columbia and Augusta Railroad Companies met in separate and general conventions, in Columbia, on the 7th and 8th of July, 1869, and agreed to consolidate their respective interests into one corporation.—The Charlotte, Columbia and Augusta Railroad Company. An amended charter, with all necessary legislation for this purpose, was obtained from the States of North Carolina, South Carolina and Georgia. According to the terms of consolidation, the stock of the Charlotte and South Carolina Railroad was valued at par, while 112½ of the Columbia and Augusta Railroad made 100 in the new company, or one share of the former of 100 was merged with 4½ shares of the latter at \$25 each. These estimates were on account of the different values of the currency according to which the two roads had been built. Each of these corporations then transferred to the Charlotte, Columbia and Augusta Railroad Company all their respective rights and property, upon condition that it should assume all their respective liabilities.

The stockholders immediately thereafter, with the view of fulfilling the conditions, authorized the President and Directors to issue bonds of this company (secured by mortgage) to an amount not exceeding \$2,100,000, to be used for the purpose of funding the floating debt and retiring the bonds heretofore issued by the said two companies, respectively, and now outstanding and for the purpose of completing the construction and outfit of the road to Augusta, and for other purposes.

For the purpose of availing, in any reasonable contingency, the necessity in future of a second mortgage, the authority was made more ample as to the amount of bonds than the then existing liabilities of the company required.

In conformity, however, with the foregoing resolution, your directors have caused a mortgage to be executed, with an authority to issue not exceeding \$2,000,000 of first mortgage bonds. The bonds bear seven per cent. interest, payable semi-annually at the agency of the company, in the city of New York, and mature on the 1st of January, 1895. They are handsomely engraved and well executed, and are freely received in exchange for the two classes of bonds heretofore issued by the former respective companies, for the reasons that they are more amply secured than either of these bonds, by the value of the property mortgaged, and the increased business of the road. In like manner the exchange and consolidation of the stock of the late corporations is being cheerfully and freely made by the holders for the stock of this company.

This brief outline of the formation of this company and its subsequent acts in carrying out the directions of the stockholders will enable you the better to understand the following

statement of receipts and expenditures to which your attention is invited.

As consolidation did not take place until the 8th of July, 1869, the accounts of the former companies were necessarily kept separate and distinct, and were so continued until the end of that month, for obvious reasons.

The gross earnings are..... \$403,785 49
The operating expenses are... 225,996 59

Leaving the net earnings \$177,788 80
Or about 44 per cent. of the gross earnings.

You will, however, readily perceive, from the foregoing synopsis, that for only five months of the fiscal year which terminated on the 31st of December last, the receipts of this company were \$218,798 03, or \$33,810, 57 more than the aggregate receipts for seven months of the two former companies.

The net earnings of the company during the year have been applied to the payment of debts, interest, equipment and the completion of the bridge across the Savannah river.

The Railroad Work of 1870 in California.

The railroad system of California has a good start. The connection with the Atlantic States brings a large number of travelers and much freight across the continent, and forms a main stem with which other roads can connect. Our local roads are already numerous, and have a large traffic. The Central Pacific has 105 miles in the State; the Western Pacific, 155; the Southern Pacific, 80; the Sacramento Valley & Eldorado, 45; the California Pacific, including the branches to Sacramento, Marysville, and Calistoga, 138; the San Joaquin Valley, 12; the California & Oregon, 50; the Los Angeles, 19; and the Oroville, 26—making a total of 630 miles, all connected together save the Los Angeles.

Work is in progress now on the California & Oregon, and the San Joaquin Valley road. The latter is to be extended this year from the Stanislaus River to the Merced, a distance of twenty-five miles. The Oregon road is now complete to a point twenty-five miles north of Marysville, and a hundred miles more will be built before winter. The Stockton & Tulare Company, which has obtained a donation of \$500,000 from local public treasures, promises to commence work without delay, and finish sixty miles as soon as possible. The agent of the Copperopolis Company has contracted for 50,000 ties, and says there is no doubt of the speedy construction of the road, which is to be forty miles long. There is a rumor that the Trustees of the Central Pacific Company have bought the El Dorado road, from Folsom to Shingle Springs, and will extend it about twenty-five miles, to tap the lumber districts of east Placer valley.

A number of other roads are projected, but their construction is made contingent upon the grant of county aid under the general act passed by the Legislature. The long opinion of the Governor, declaring the act unconstitutional, is not conclusive, but is strong enough to prevent any sale of county railroad bonds; so the companies soliciting the bonds must carry the case to the Supreme Court. They want to have a decision at the earliest possible moment. But how shall they get it?—The most natural way would be to wait until bonds should be issued under the act, but that method would require a large expenditure to construct the first section of the road. The question must be raised in some other manner.

The Supervisors of San Francisco have finally passed the order calling a special elec-

tion on the 7th of June, to determine whether the city shall donate \$1,000,000 in bonds to the Southern Pacific Railroad Company, in consideration of the construction of 200 miles of road southward from Gilroy; \$250,000 to be delivered after the completion and stocking of each section of fifty miles.

On the 14th of June Sonoma County will vote on a proposition to give \$5,000 per mile to a road from Napa County to Healdsburg, viz Petaluma and Santa Rosa, with branch at Bloomfield, with the condition that if the aid is given the whole road shall be completed within two years; and with a promise that the company will try to run their cars to Santa Rosa before January next. It is expected that the vote will show a large majority in the affirmative.

W. W. Pendegast appeared before the Supervisors of Colusa County last week, and requested them to hold a special meeting within two or three weeks, for the consideration of a proposition of the California Pacific Railroad Company in reference to county aid for a road from Woodland to Colusa. The request was denied, so the matter goes over to the next regular meeting, in August. Two propositions for aid to railroads were before the Supervisors of Monterey last week, but were laid over because they were not sufficiently specific. One was from Holladay & Brenham, for a road from Salinas to Monterey. There is some talk about aid by Merced and Fresno Counties, to the San Joaquin Valley road, but no official action has yet been taken.

The failure of the grain crop in some of the principal agricultural districts will have a very pernicious influence on railroad enterprise; and, since the Governor has published an elaborate opinion that counties can not constitutionally aid railroads, not much will be done, even on those roads to which county aid is offered, until the Supreme Court has passed its opinion on the matter. Yet with all the adverse contingencies, it seems almost certain that we shall get 150 miles of new road this year, and that will be a very respectable addition to our old stock.—*San Francisco Alta Californian*.

CURIOUS FACTS IN REGARD TO SOUND.—The following curious observations in regard to the transmission of sound have been carefully verified by an extended series of experiments: The whistle of a locomotive is heard 3300 yards through the air; the noise of a railroad train, 2800 yards; the report of a musket and the bark of a dog, 1800 yards; an orchestra or the roll of a drum, 1,600 yards; the human voice reaches to the distance of 1,000 yards; the croaking of frogs, 900 yards; the chirping of crickets, 800 yards. Distinct speaking is heard in the air from below up to a distance of 600 yards; from above, it is only understood to a range of 100 yards downward. It has been ascertained that an echo is well reflected from the surface of smooth water only when the voice comes from an elevation.

Other similar phenomena connected with the transmission of sound have been observed, but the results disagree either from inaccuracy in the observations or from the varying nature of the circumstances affecting the numbers obtained. Such variations occur to an extent of 10 or 20 per cent, and even more. The weather being cold and dry, or warm and wet, are the chief influencing causes. In the first case, the sound goes to a greater, and in the second to a lesser distance.—*New York Technologist*.

East River Bridge.

DETAILS OF AIR AND SUPPLY SHAFTS.

The work on the caisson for the Brooklyn side has progressed without accident or material delays; and the shafts were placed in position during the first weeks of January, and since that time there has been no delay; and at the time of writing, the tin sheeting and felt are being put on. The work of building the trusses and placing them in position to support the roof, was one of no small magnitude; they were five in number, reaching across, at equal spaces, from one side of the chamber to the other, and nine feet in height. As the first course of the roof was laid, the lower section of each shaft was placed in its proper position and blocked up, until the placing of the second course would give an opportunity of holting the angle iron through two feet of timber. As the successive courses of the roof were added, bringing it to the top of the first section of the shaft, the second section—six feet in length—was added.

The air-shafts, of which there are two in the caisson on the Brooklyn side, are 3 ft. 6 in diameter on the inside, composed of $\frac{1}{4}$ in boiler iron, and are built in sections of 6 ft. in length—except the lower sections which are 5 ft. in length, and project 2 ft. below the first course of the chamber. At the top of each shaft is an air lock, or a section of the shaft, which can be closed both from the air without and the shaft below, and raised entirely above the caisson, for the purpose of admitting workmen and materials to the chamber, without diminishing the pressure in the interior of the shaft or the chamber. Each air-lock is supplied with two doors, or man-holes, A and B, and at the bottom of the shaft there is a similar door in order that the pressure may be taken off the whole shaft, without diminishing the pressure in the chamber. The maximum pressure upon the shaft is calculated at 45 lbs. to the square inch, making a total of 102 tons pressure upon the top of the air lock.

The character of the work will be the same as boiler work, and that part of the shaft which is inclosed by timber is of second quality iron. There is one vertical seam and single-riveted lap-joint on the outside. At the end of each section an angle iron to connect two sections with bolts $\frac{3}{4}$ in. diameter, and $2\frac{1}{2}$ in. apart, is fitted, each joint being well caulked with rubber, smeared with red lead. And all seams and joints, where practicable, are chipped and caulked, and all rivets fill completely, and are well hammered, in short, the workmanship must be as complete and perfect as that of steam boilers.

Each section is furnished with a ladder, which, when the sections are connected, form a continuous means of ascent and descent from the top of the air-lock to the bottom of the shaft—a movable section attaches at the lower end leading to the bottom of the chamber. As the caisson sinks by the excavation, the air-lock is removed and a section added, and the air lock again placed upon the top. Between the fourth and fifth courses of timber from the bottom is represented the angle iron, to which the tin sheeting, referred to in the previous number, is soldered.

At the bottom of the shafts an angle iron is fitted, which, bolted to the shafts and to the timbers forms an air-tight joint, at the same time holding the shaft in position. The air lock, is provided with all the attachments for convenience and safety in working. The doors, closing from below, are work-

ed by a continuous chain and windlass. The air-cocks, opened on the inside, serve to graduate the pressure, and the cock admits the air from the shaft to the air-lock, equalizing the pressure between the two, when the door will open of itself.

Also the gauge indicates within the air-lock the pressure upon the shaft below; and the dial indicates the pressure within the air-lock to the outside.

The supply pipe—6 in. diameter—and valve connect with the condensers, by mains 8 in. and 10 in. in diameter. The condensers are tanks, immediately joined to the pumps, which hold a large supply of condensed air, for instant use in case of necessity—mains of 10 in. diameter lead from the condensers, and at a short distance therefrom are forked into two 8 in. pipes. These are again forked into two 6 in. pipes. This reduplication was thought necessary to guard against accidents.

In order to light the air-lock, six windows or "bull's eyes" were inserted at the top of each, and made sufficiently strong to allow of the top of the locks being used as a platform on which workmen could stand.

The supply shafts, also two in number, and 1 ft. 9 in. diameter, are of the same character of work as the air shafts, but there are no air locks attached.

The valves at the top and bottom serve to admit materials to the chamber below. The joints of each section, which are 6 ft. in length, are formed by butting the plates together and a lap-strip placed on the outside covering this joint and bolted through with two rows of bolts, the bolts on the inside being countersunk, leaving the shaft a smooth surface on the inside.

At the time of launching it would be necessary to force in air to make the caisson buoyant, and the temporary covers and supply pipe were attached for that purpose. Air-tight receivers are constructed within the chamber, into which air is forced and condensed to the extent of making it sufficiently buoyant to prevent diving.

The small pipe serves to exhaust the air in the shaft, and also to admit the compressed air in the chamber, to the shaft, to produce an equilibrium and open the lower door of the shaft.

The water shafts are also like the others, two in number, located on the center line, joining the ends of the caisson, and at one fourth of the distance from the ends. Thus dividing the chamber into two rectangles of which the shafts are the centers.

These shafts are nearly square, being 6 ft. 6 in. by 7 ft., composed of $\frac{1}{4}$ in. boiler iron, and built in sections of 6 ft. in length—connected by flanges on the outside, leaving the inside smooth. These shafts extend to the bottom of the chamber, and when in position for working, the lower ends are beneath the surface of water, and as the pneumatic pressure within the chamber is made equal to the pressure of the column of water without, the surface of the water in the shaft will be at the same level as the surface of the river.

The top of the shaft is heavily ironed to support the frame which sustains the dredging machine.

This shaft, which is the marked characteristic of the caisson, offers a direct communication with the interior of the chamber, though through water, by which the excavated material may be removed by the dredging machine. At the mouth of the shaft a pit is excavated to a few feet in depth, into which the material under the caisson is thrown, within reach of the dredging basin.

That part of the shaft within the chamber, and unsupported by the timber surrounding it, is strengthened by crossbars and ribs, lest the pressure of the column of water within the shaft, if suddenly brought to bear on the lower end by exhausting the air in the chamber, would at least force it out of shape, if it did not burst it.

During the construction of the air shaft, it was found so difficult to fit the top and bottom of the air-locks, around the door and flanges, when made of boiler plate, and the joints were to be caulked and made tight, that it was deemed of great importance to obviate this difficulty if possible. Therefore, at the suggestion of F. Collingwood, C. E., who is engaged in developing the details, this part was changed to cast-iron. Patterns were therefore made, after plans prepared by him, for castings in one solid piece; these were strengthened by ribs, and the whole constructed at a reduced cost.

[The Technologist.]

HOMOGENEOUS IRON RAILS—Chief Engineer Stockton, of the Alleghany Valley Railroad, in his annual report, makes the following comparison between iron and steel rails:

"In regard to the durability of iron rails I have never seen a rail perfectly homogeneous worn out; neither have I heard any civil engineer say that he had, and I have frequently asked the question. In speaking of these things to a prominent iron manufacturer of this city he kindly proposed to furnish to this company a couple of iron rails made from his common merchant bar. These were received and laid on the track in March, 1868, and on the opposite side of the track were laid steel head-rails manufactured in Michigan. Both were laid at a point where it was supposed they would receive the roughest service. In less than six months some of the steel rails had given out, and shortly after they were lifted and Brady's Bend rails supplied. These were worn out and others supplied and worn out, while the two rails furnished by the party above referred to remain in the track apparently little the worse for the service."

MEMORANDA CONCERNING NAILS—This table will show at a glance the length of the various sizes, and the number of nails in a pound. They are rated from "3 penny" up to "20 penny." The first column gives the name, the second the length in inches, and the third the number per pound:

3-penny,	1 inch long	557 per pound
4 "	1 $\frac{1}{4}$ "	353 "
5 "	1 $\frac{3}{4}$ "	232 "
6 "	2 "	167 "
7 "	2 $\frac{1}{4}$ "	141 "
8 "	2 $\frac{3}{4}$ "	101 "
10 "	2 $\frac{1}{2}$ "	98 "
12 "	3 "	54 "
20 "	3 $\frac{1}{2}$ "	34 "
Spikes,	4 "	16 "
"	4 $\frac{1}{2}$ "	12 "
"	5 "	10 "
"	6 "	7 "
"	7 "	5 "

From this table an estimate of quantity and suitable sizes for any job can be easily made.

—Upwards of 100 miles of the Lake Superior and Mississippi Railroad are completed, and 2,500 men are at work upon the remainder. The road is to be opened by a grand excursion from St. Paul to Duluth, on the 4th of July.

Railroad Items.

—The annual meeting of the stockholders of the Atlantic and Pacific Railroad Company was held in Boston on the 19th inst., the President, Mr. Francis B. Hays, in the chair. About a dozen gentlemen were present, representing nearly 30,000 shares of stock. A resolution was adopted on motion of Mr. Seigman, giving the Directors full power to make such contracts with the South Pacific Railroad Company under their charter as they should deem advisable. The road begins at Springfield, Missouri, and is now graded 50 miles west from that city, tracks are laid, and the road completed for 30 miles. The President states that the work is now progressing at the rate of one and one-half miles a day. The South Pacific and this road are owned and managed by the same person, although with separate charters. The South Pacific extends from St. Louis to Springfield, Mo., a distance of 242 miles, and has been finished. At the meeting the following Directors were elected, after which the meeting adjourned: Francis B. Hays, Uriel Crocker, Isaac Rich, Jacob Sleeper, Boston, Mass.; Andrew V. Stont, New York; Frederick Billings, Woodstock, Vt.; Andrew Pierce, Jr., St. Louis, Mo.; William H. Coffin, Clyde, N. Y.; Charles J. Morrill, Boston, Mass.; Oliver Ames, N. Easton, Mass.; Joseph Seligman, New York; George S. Curtis, Boston, Mass.; Charles E. Harwood, Springfield, Mo.—*Am. R. R. Journal*.

—At a meeting of the corporators of the St. Croix and Superior Land Grant R. R. Co., in Prescott, Wis., on the 12th inst., a resolution was adopted excepting the charter, and directing the acceptance to be filed with the Secretary of State of Wisconsin. Philip W. Holmes, of New York, Nathan K. Elmore and Joseph Colamer, of Philadelphia, were appointed commissioners to open books for subscriptions of stock. James Smith, Jr., of St. Paul, attorney for Jay Cooke & Co., subscribed for five hundred shares, amounting to \$500,000, the amount required in the charter to be subscribed preliminary to the organization of the company. A further meeting was ordered to be held at Milwaukee, July 14th, for the election of directors and officers of the company.—*American Railroad Journal*.

—There was a full meeting of the directory of the Covington, and Lexington Railroad on Friday at the office of Peter Zinn, in Covington, Ky. Vice President A. L. Greer in the chair. John Bedford, Joseph Shawhan, Sr., George H. Perrin, Ed. T. Clarkson, John F. Fisk, G. Y. Riots and Daniel J. Fallis, Directors, were in attendance. A report from the attorneys as to the progress of the suit for the recovery of the road was made. Hon. Stanley Matthews in consequence of engagements occupying all the time he could spare from his business resigned his directorship in the road. Thereupon Peter Zinn was appointed to fill the vacancy, and subsequently elected President of the Company. The President, A. L. Greer, and D. J. Fallis were appointed an executive committee.

—The Grand Rapids Democrat says the work of grading on the Grand Rapids & Indiana Railroad has been recommenced at a point south of that city. The graders will be followed in a short time by the track layers, and the company promise to have the road open and ready for business from Big Rapids to Fort Wayne by October 1.

—The Henderson (Ky.) *News* says that the Evansville, Henderson & Nashville Railroad between Henderson and Nashville, Tenn., will be completed about the first or during the month of October. The iron has already been purchased and paid for, to complete it to the coal fields. There are now four hundred laborers, or more, employed, and the force being increased. Additional new rolling stock has been placed on the other end of the line, and a passenger coach and baggage car for this end have arrived at Evansville and will be placed upon the track in a few days.

—The following gentlemen have been elected directors of the Greenville & Columbia (S. C.) Railroad for the ensuing year: John J. Jatterson, J. W. Harrison, Niles G. Parker, James L. Orr, Timothy Hurley, D. M. Porter, Joseph Crews, H. H. Kimpton, James M. Allen, A. J. Ransier (colored), George W. Waterman and F. L. Cardozo (colored). The officers are: President, Frederick Bush; Vice President, John J. Patterson; Secretary, C. V. Carrington; Superintendent, James O. Meredith; Treasurer, J. G. Edwards.

—The following gentlemen have been elected directors of the newly organized Midsonville & Shawneetown Railroad Company: G. W. Noel, Polk Lafoon, of Hopkins county; R. J. Laughlin, Thomas S. Givens, J. H. Parker, of Webster county, A. J. M. Thompson, W. S. Pierson, of Union county. The Board elected William L. Gordon, Esq. of Madisonville, Ky., President, and James K. Givens, of Providence, Ky., Secretary.

—C. W. Harwood and F. Neil directors of the Shelbyville and Danville road, are now in the latter place, and are meeting with a cordial reception. An opportunity will be given the people of Boyle county to subscribe \$200,000 of stock. The matter will first be presented to Mercer for a stock subscription of \$460,000, and, if the vote is favorable, then in Boyle county immediately afterward.—*Ky Yeoman*.

—The following gentlemen were elected managers of the Delaware & Hudson Canal Company on the 10th inst: Charles N. Talbot, Edward J. Woolsey, George Talbot Olyphant, Abiel A. Low, Robert Lenox Kennedy, James M. Halsted, James R. Taylor, Thomas Dickson, John Jacob Astor, Thomas Cornell, W. J. Hoppin, Isaac N. Seymour, Legrand B. Cannon. Thomas Dickson was re-elected President.

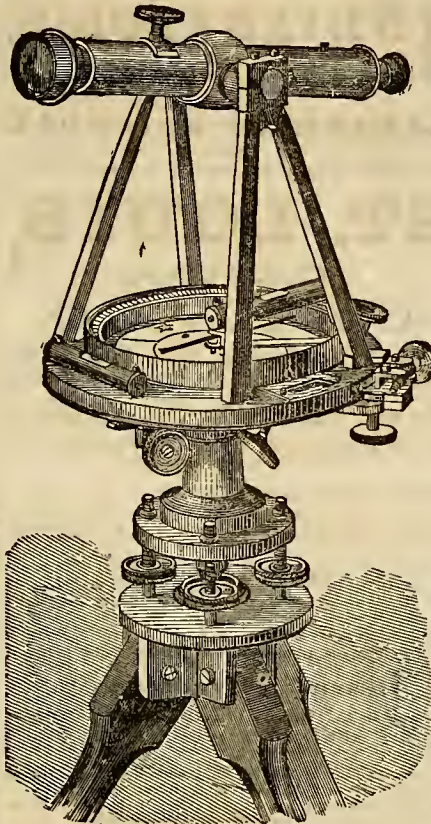
—The following gentlemen have been elected directors of the New York and Harlem R. R. Co., for the ensuing year: Cornelius Vanderbilt, C. Vanderbilt, Jr., W. H. Vanderbilt, Augustus Schell, Horace F. Clark, A. B. Bayliss, J. H. Banker, Joseph Hasker, W. C. Wetmore, Oliver Charlick, J. B. Dutcher, W. A. Kissam, C. M. Mersevole.

—The iron for the Northern Pacific and other great Western railroads, will probably be taken from the Lake Superior mining region, where some of the best iron in the world is to be found.

—President Singleton, of the Quincy, Alton & St. Louis, has arranged in New York for all the money required to finish the road before the end of this year.

—It is understood that thirty thousand tons of railroad iron will be forwarded this season from Johnstown via Erie to Duluth, to be used in the construction of the Northern Pacific Railroad.

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(Sundays excepted.) Arrive Dayton 9 10 A. M.; Urbana, 10 29 A. M.; Galion, 12 57 P. M.; Mansfield, 1 40 P. M.; West Salem, 2 50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4 26 P. M.; Ravenna, 5 10 P. M.; Meadville, 8 40 P. M. (Supper); Snosquehanna, 7 55 A. M. (Breakfast); Turner's, 1 40 P. M. (Dine); New York, 3 00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with a terminus trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12 03 A. M.; Urbana, 1 25 A. M.; Galion, 3 58 A. M.; Mansfield, 4 44 A. M.; West Salem, 5 59 A. M. (Bkfst.); Akron, 7 38 A. M.; Ravenna, 8 25 A. M.; Meadville, 11 20 A. M. (Dine); Hornellsville, 6 19 P. M. (Supper); New York, 7 00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-Ninth Street New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY.

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and North-West.

B. SHATTUCK, General Southern Agent.
WM. R. BARK, Gen'l Passenger Agent.

Best Route to St. Louis and Chicago

INDIANAPOLIS,

CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memph's, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7 35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7:20 am	12:40 am
St. Louis and Springfield Express....	7:40 pm	7:35 am
St. Louis and Springfield Express....	1:20 pm	3:42 pm
Lawrenceburg Accommodation.....	10:10 am	2:35 pm
Lawrenceburg Accommodation.....	4:00 pm	8:25 am

*The 10:10 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7:00 am	10:15 am
Chicago Express.....	6:50 pm	9:30 pm
Harrison Accommodation.....	5:30 pm	7:10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl streets. The splendid Passenger Depot of the L. & O. Railroad is about a mile, nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. K. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Layton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE
Eastern Express (Erie Railway).....	7:30 A. M.	6:30 P. M.
do do do.....	9:45 A. M.	7:40 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do.....	6:30 P. M.	7:40 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do.....	2:30 P. M.	5:40 P. M.
do do do.....	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:40 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Nuncio Indianapolis.....	7:15 A. M.	10:25 P. M.
do do.....	5:40 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do.....	5:10 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:45 A. M.
do do.....	6:00 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

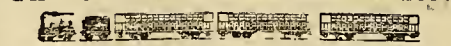
For all information and through tickets, please apply at the local office, south-east corner of Broadway and Front; or at the House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,
No 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent,

Pittsburgh, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7:35 A. M.	3:45 P. M.
Evening Express.....	7:15 P. M.	3:45 P. M.
Night Express.....	11:15 P. M.	5:00 A. M.
Walton Accommodation.....	4:00 P. M.	9:35 A. M.

*The 7:35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, other great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Supt. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty St., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie, &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2, 3:00, 3:30, 3:45, 4:15, 4 3, 4:45, 5:10, 5:25, 5:45, 6:00, 6:15, 7:10, 7:22, 7:40, 8, 9, 9:00, 9:40, 10:40, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty St., N. Y.; at No. 1 Astor House; Nos. 254, 271, 520 Broadway; at No. 10 Greenwich St., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }

W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JUNE 9, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
" column, single insertion.....	7 00
" " per month.....	14 00
" " six months.....	55 00
" " per annum.....	110 00
" page, single insertion.....	25 00
" " per month.....	40 00
" " six months.....	135 00
" " per annum.....	210 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'rs.

Population of the Country and the Distribution of Public Lands.

The land grant to the Northern Pacific, which we are glad to say has been made and will be of an immense benefit to the country, seems to have stirred up a large amount of that picayune jealousy which is so common in narrow-minded people. This is to be expected; but, in the meantime, a liberal policy prevails among statesmen who understand the wants and interests of the country.

In a former number, we gave a digest of the public lands in the territories, and of some of the modes of distribution. We shall pursue this subject in connection with the population of the country west of the Mississippi. We may here remark, that in one thing there has been great injustice done in the distribution. This is in not making an equal distribution among the old as well as the new States. The old States do share in the individual settlement of the lands under the Homestead law, the military bounties and the Agricultural College grants. These, however, are small in comparison with the whole amount granted.

The following table gives the whole amount of lands granted to the States which were formerly called "Western," that is, west of the mountains, and also to those west of the Mississippi. This, however, is exclusive of schools:

	Acres.
Ohio.....	11,996,598
Indiana.....	4,817,213
Illinois.....	15,779,482
Missouri.....	16,662,000
Michigan.....	20,140,000
Arkansas.....	14,969,000
Iowa.....	19,500,000
Wisconsin.....	12,849,000
California.....	7,509,000
Minnesota.....	19,600,000
Oregon.....	3,249,000
Kansas.....	5,560,000
Nevada.....	554,500
Nebraska.....	2,600,000
Washington.....	450,000
New Mexico.....	210,000
Utah.....	2,000,000
Dacotah.....	100,000
Colorado.....	220,000
Montana.....	
Idaho.....	
Arizona.....	

Here are (150,000,000) one hundred and fifty millions of acres given—exclusive of schools—to the States west of the mountains, not the South. The largest part of this has been given for railroads, canals and internal improvements, drainage of swamp lands, &c.

It will be seen, in the above statement, that Ohio, Indiana, Illinois, Michigan and Wisconsin got 66,000,000 of acres. If now we suppose, Minnesota, Dacotah, Montana, Idaho and Washington—through which the Northern Pacific goes—to get the same quantity, and we take from it what they have already received—10,600,000—there will remain 54,400,000 acres fairly due them. It is probable the Northern Pacific road will consume half of this quantity, so that, after all, those territories have no more than half the quantity they have a fair right to.

We mention this only by the way. We want to show something of the growth of those States and territories which have profited by the public lands. In the Eastern States, which derived little or no benefit from the lands, there has been a rapid growth from manufactures; but in States where manufactures could not be largely carried on—as Maine, Vermont, New Hampshire, Maryland and the South Atlantic States, they have grown but very little. Here is a table of the Western States, in population, from 1830 to 1870, a period comprehending what may now be called a generation. The population of 1870 is an estimate from known facts:

	1830.	1870.
Ohio.....	937,903	2,950,000
Indiana.....	343,031	1,900,000
Illinois.....	157,445	2,800,000
Michigan.....	31,639	1,320,000
Wisconsin.....		1,209,000
Minnesota.....		500,000
Iowa.....		1,200,000
Missouri.....	140,455	1,300,000
Arkansas.....	30,388	700,000
Kansas.....		400,000
Nebraska.....		100,000
New Mexico.....		100,000
Montana.....		60,000
Dacotah.....		20,000

Idaho.....	30,000
Colorado.....	60,000
California.....	350,000
Oregon.....	100,000
Washington.....	50,000
Nevada.....	50,000
Total.....	1,640,861 15,170,000

Thus, forty years ago there were only a million and a half of people, where now there are over fifteen millions.

Such a settlement and growth, and expansion of population as this, has never been known on earth, and it never would have been known but that it was a public domain, which cost the settler comparatively nothing. But how was the settler to get to the lands without roads? The truth is, that no part of the Western country has been settled till first well supplied with communications; and hence the railroads are the best means of improving the public domain.

Board of Trade.

INTERESTING REPORTS OF THE COMMITTEES ON CANALS AND TRANSPORTATION.

The Board of Trade held an adjourned meeting on Tuesday, President Lane in the chair.

Mr. Smith, from the Committee on Manufactures, stated that their report would be printed in the annual report.

SOUTHERN RAILROAD.

The Committee on Railroads presented a report upon the paper prepared by E. Le Hardy de Beaulins, Chief Engineer of the Selma, Rome & Dalton Railroad, in relation to the location and route of the Southern Railroad. The report speaks in high terms of the ability shown in the preparation of the article, and indorses it as worthy the consideration of those in charge of the Southern Railroad.

A resolution was adopted referring the paper to the Trustees of the Southern Railroad.

LOUISVILLE & PORTLAND CANAL.

The Secretary read the following report from Mr. Theo. Cook, on behalf of the Committee on River Navigation:

CINCINNATI, June 4.

Secretary of the Board of Trade:

DEAR SIR: I find that I can not be present at the meeting of the Board this evening. Touching the letter of Joseph W. Gilbert, which was referred to the Committee on River Navigation, I would say that I regard the proposition to loan money to General Weitzel by the citizens of this city for the prosecution of work on the canal at Louisville as impracticable, and one which can not be carried out. It appears to me that the contractors who are to do the work, and who will make a profit out of it, might reasonably be asked to assume the risk of a speedy appropriation of money for their pay—a risk which no one considers very hazardous. I presume that there is not the slightest doubt now that Congress will make, at an early day, an appropriation sufficient to pay for all the work which can be done this year. Therefore I would suggest

that instead of going among our business men to ask subscriptions to a loan for this purpose, the contractors make their arrangements with some capitalist to furnish the money pledging as security the approved estimate of General Weitzel for work done. I do not think the contractors will have any great difficulty in arranging a negotiation of the kind. I have not had time to see or consult other members, of the committee.

Respectfully, THEO. COOK.

The report was received, and the following resolution was adopted:

Resolved, That we deem it expedient during the pendency before Congress of the question of making an appropriation for the Louisville Canal, for this board to take any action in reference to raising money for that purpose.

TRANSPORTATION OF FREIGHTS.

The Committee on Transportation, consisting of Messrs. N. Macneale, M. Loth and James J. Hooker, presented a somewhat elaborate report. The committee reiterate the complaint that shippers have not furnished them with evidence on which to found good cases against the several lines of transportation regarding which accusations have been so freely made in the public press. In most directions there is sufficient competition to insure fair rates to shippers if they will carefully study their own interests and divest themselves of the idea that freight agents are their special instruments for the conduct of their business, when on the contrary they are interested parties in a contract to be made. There are many complaints of discrimination against Cincinnati that seemed to be uncalled for. And yet it is true that shippers are subject to grievances in some directions. Toward the South there is not proper competition, and it is doubtless true that there is some ground for the numerous complaints of overcharges and delays on the Louisville & Nashville Railroad. Shippers have been called upon to furnish written statements of facts in relation to these cases, and a sub-committee has been appointed to proceed to Louisville and investigate the matter fully, as soon as the proper data are furnished them. But thus far but one house, that of White, Corbin & Bouve, has furnished the committee with any evidence upon the subject.

The committee refer to the improper classification of certain articles in the freight tariff of some of the Southern roads as one of the causes of the high rates to some points. For instance, ale and porter in wood are classified, on the Memphis & Charleston and Nashville & Decatur roads, first-class, while the Louisville & Nashville, and all Northern roads classify the same article fourth-class.

The great difficulty, however, is the fact that the Louisville & Nashville Railroad enjoys a substantial monopoly of our Southern freight. The resumption of the line of packets which the Government found it necessary to establish during the war, running up the Tennessee river to Johnstonville, and connecting there with the road to Nashville, might afford partial relief. The first positive relief, however, would be found in the completion of the Nashville & Henderson Railroad, and the competing route then offered to Nashville, via the Ohio & Mississippi and the Evansville & Crawfordsville roads to Henderson, and thence to Nashville. The Ohio & Mississippi road will doubtless be compelled to lay a broad gauge track from Vincennes to Evansville on the line of the Evansville & Cincinnati road,

The Rockport road may also afford some relief.

But, after all, nothing will place us on a firm and substantial basis except the construction of our grand trunk Southern road. The Committee remark that the public interest in this road, which is the most important project ever brought before our citizens, and an actual necessity for our commercial life, seems to have relaxed, and we are contented to wait for "something to turn up" instead of pushing forward regardless of opposing difficulties. The committee remark: "The constant changes that are being made in classification of freight in the Southern roads, preventing positive time contracts for through freight; the professed inability of the Louisville & Nashville Railroad to carry all the freight offered them by our own and other cities; the uncertainty of river navigation; the blockade of the river by the Louisville bridge and the non-completion of the canal around the falls are great obstacles to our prosperity, but we hope to see these evils obviated by the means referred to."

The report then refers to the movement inaugurated at the last General Freight Agents' Convention in Cleveland to secure a uniformity in the classification of freights on all the roads in the country, and expresses a hope that the new schedule will be adopted. The committee express the opinion, however, that an entire abatement of the trouble can not be hoped for until the railroad business of the country has become so systematized as to authorize the establishment of a general clearing house for the settlement of accounts between individual roads similar in effect to the bank clearing house system.

The report closes with the following remarks in relation to the necessity for a line of water transportation to the East:

"We have said that generally there is competition enough to insure fair rates of transportation to the various points we desire to reach, but we are much in need of a well organized line of water transportation to the East. Chicago obtains vastly lower rates on Eastern freight than we do, because water competition keeps down excessive railroad charges. It is possible we might avail ourselves more of lake and canal transportation than we do; but we are not prepared to give a matured opinion as yet on this subject.

No doubt the completion of the Chesapeake & Ohio R. R. will cheapen our Eastern freight, and the formation of a direct railroad connection with it will be of incalculable benefit to our city; but we do not think our citizens should lose sight of the advantage that might be obtained by a well organized line of water transportation toward the East, either by way of the lakes or James River Canal.

SECRETARY'S REPORT.

The Secretary presented his report for the quarter ending June 1, showing that the receipts from memberships had been \$3,110, and the disbursements \$1,227.48. During the quarter, fourteen firms, comprising thirty-nine names, thirty-two individuals and two incorporated companies, have been added to the membership list of the board, an increase of 75 to the individual membership, making a total individual membership, June 1, of 503 names, and a total voting membership of 421.

ENLARGEMENT OF CANALS.

The Standing Committee on Canals, consisting of Gen. B. R. Cowen and Benj. P. Hinman, Esq., presented a carefully-prepared

report in reference to the enlargement of the canals of the State.

MIAMI & ERIE CANAL.

The committee embody in their report the report prepared by Samuel Forrer, Esq., of Dayton, under the direction of the State Board of Public Works, and submitted to the General Assembly last February.

Mr. Forrer estimates the cost of the enlargement of the Ohio Canal to the capacity of the Erie Canal, of New York, at \$22,600,000, and the cost of the enlargement of the Miami & Erie to the same capacity at \$18,000,000.

The Miami & Erie Canal, he says, is 246 miles long, from the Ohio river to the lake, and of this length there are 66 miles having six feet depth of water, and 33 miles having five feet depth, and 147 miles having only four feet depth. He presents two plans for the enlargement of the canal, both embracing the raising of the bank so as to give five feet of water where there is now only four feet.

The first plan is to lengthen the locks 25 feet, which would give the locks a capacity to pass boats one hundred and three feet long, drawing four and one-half feet of water, and carrying one hundred and fifty tons of freight or double the amount now carried. The cost of this enlargement he estimates at \$1,800,000.

The second plan is to lengthen the locks forty feet, which would permit the passage of boats 118 feet long, carrying 170 tons of freight. The cost of this improvement he estimates at \$2,015,000. In either case, he remarks, the cost of transportation over toll would be but little more than half the present rates, as it would require no more persons to manage the boat.

To make the same improvement in the Ohio Canal would cost, according to the first plan, \$2,900,000, and according to the second, \$3,200,000.

The committee, in commenting on Mr. Forrer's report, express a doubt of the practicability of constructing a ship canal from here to Toledo at present on account of the heavy expense. As to the other two plans, they regard the difference between the estimated expense of the two improvements as too slight to be worthy of consideration.

They then proceed to consider the expediency of the improvement according to the second plan proposed above. They present a comparison of rates over various canals before and after enlargement. For instance, on the New York and Erie Canal, where, with a capacity for boats of fifty tons, about the same capacity with the Ohio canals at present, the rate for transporting freight was one dollar per ton for 108 miles, or 9 4-10 mills per ton per mile. Enlarged to a capacity for boats of 100 tons, the cost was reduced to 5 6-10 mills per ton per mile. And when the capacity was enlarged to pass boats of 136 tons, the cost was reduced to 4 6-10 mills per ton per mile, showing a reduction of one-half in the cost of transportation by reason of the enlargement. On coal over this canal the cost was 2 9-10 mills per ton per mile, including every expense, interest on investment and depreciation of property, excepting a portion of the expense of unloading. Including the entire expense of unloading, the cost was 3 1/2 mills. The effect of enlargement upon the cost of transportation in the cases of several other canals was also illustrated by figures, showing that in every case a large reduction had taken place, and the committee concluded

that the proposed enlargement of the Miami & Erie Canal would reduce the expense of transportation nearly fifty per cent.

The business of this canal at this point alone for the year 1869, on some of the principle articles, aggregated more than 100,000 tons and over 12,000,000 feet of lumber. Nearly 110,000 tons of coal were shipped from here in that year. A saving of fifty per cent. on the expense of transporting that amount of freight would go far toward paying the interest on the estimated cost of enlargement, while the largely increased business by reason of the enlargement, and the reduction in rates, would no doubt be more than enough to pay the interest on the entire cost.

But in addition to this, is the immense benefit to the country traversed by the canal hence to Toledo. The canal passes through the richest farming lands of Ohio, considerably developed already by the present canal, but susceptible of much greater improvement under the influence of improved and more economical means of transportation, while the enterprise of our city can very readily attract a large portion of such increased production to our own market. It would also give a great impetus to our mineral and lumber traffic with northern Michigan.

THE LOUISVILLE CANAL.

The committee express the belief that the completion of this canal, under the energetic supervision of Gen. Weitzel, may be looked upon as certain at no very distant day. The necessary appropriation has the hearty approval of the Finance Committees of Congress, and there is little doubt that it will be made.

JAMES RIVER AND KANAWHA CANAL.

Of this project the committee say:

This canal—198 miles of which, from tide water on the James river to the village of Buckhannon, Va., are already completed—is an enterprise in the completion of which we should have a very great interest. Without Congressional aid, however, it will probably never be completed, and the active friends of the measure do not feel much encouragement to hope for aid from that source at the present time. The State of Virginia has agreed to donate all of her interest in the work to the General Government—amounting to about ten million of dollars—if Congress will make an appropriation of forty millions of dollars more, which it is thought will complete the work to the Ohio river at the mouth of the great Kanawha river.

The benefits accruing to the agricultural interests of the Mississippi Valley from a reliable water line to the Atlantic seaboard, free from any possibility of obstruction by ice, can not be over-estimated, and the appropriation of the required amount of money for that purpose would doubtless be more profitable to the country than many other enterprises which seem to have found favor in the eyes of our national law makers.

It would be well for the Board of Trade to authorize an examination of this project, and direct a report in detail to be made, showing its present condition, the probabilities of its completion, and any other facts connected with it which may be of public interest.

The report was received and ordered to be printed, and copies sent to the Senators and Representatives from this State, and to the members of the General Assembly.

MUNICIPAL SUBSCRIPTIONS TO RAILROADS.

The following resolution was adopted:

"Resolved, That in the opinion of this board it is expedient and good public policy

to recommend an amendment to the Constitution of the State of Ohio, authorizing stock subscriptions to railroads by the cities, towns and counties of the State."

On motion it was resolved that the use of the Board of Trade rooms be tendered to Dr. William Elder, of Philadelphia, to deliver a lecture on "Protection to Home Industry."

Col. Albert S. Berry, of Newport, one of the Directors of the Licking & Big Sandy Railroad, was, on motion, invited to address the meeting. He exhibited maps and estimates of the proposed route, and strongly urged its advantages over those offered by any other route to connect with the Chesapeake & Ohio Railroad.

At the conclusion of his address, the following resolution was adopted:

"Resolved, That the thanks of the board are given to Col. A. S. Berry for his interesting and important statement in reference to the Licking & Big Sandy Railroad, and that the subject be referred to the Committee on Railroads, with whom Col. Berry is invited to communicate."

The meeting then adjourned.

Milwaukee and St. Paul Railway Co.

This company owns the following lines of railroad: Milwaukee to St. Paul, via Prairie du Chien, 405 miles; Milwaukee to La Crosse, via Watertown, 196 miles; Milwaukee to Portage via Horicon, 95 miles; Horicon to Berlin and Winneconne, 58 miles; Watertown to Madison, 37 miles; Milton to Monroe, 42 miles; Calmar to Nora Springs, 65 miles; Conover to Decorah, 10 miles; Mendota to Minneapolis, 9 miles—total 917 miles. On the first of January, 1869, the company had 825 miles, showing an increase during the year of 92 miles, viz: June 1st, 11 miles; August 1st, 27 miles; September 1st, 29 miles; and October 1st, 25 miles. The average for the year of the number of miles owned by the company is 858 miles. The following is a comparative statement of earnings and expenses during the years ending December 31, 1868 and 1869:

Earnings:	1868.	1869.
From freight.....	\$4,266,283 89	\$4,909,525 02
" passengers.....	1,695,295 72	1,781,134 77
" mails, express etc..	556,066 10	560,008 89
	\$6,517,645 71	\$7,250,668 68
Expenses:		
Repairs of track.....	\$591,804 31	\$615,595 95
bridges.....	51,796 89	34,189 19
fences.....	4,848 37	3,902 72
buildings.....	81,718 04	88,601 90
locomotives...	253,946 66	252,931 62
cars.....	365,390 94	407,323 45
tools, etc.....	41,085 38	36,738 19
Management and general office..	111,743 06	111,718 70
Foreign ag'y and advertising....	26,952 62	24,662 98
Station service...	381,901 48	446,553 81
Conductors, etc..	173,100 80	212,772 04
Engineers, etc..	222,263 55	273,171 03
Train and Station supplies.....	92,530 31	102,810 25
Fuel consumed...	432,380 75	566,520 99
Oil and waste...	53,274 04	65,328 72
Personal injuries	6,689 48	30,277 02
Damage to property.....	17,914 72	26,588 66
Loss and damage of freight and baggage.....	16,123 91	6,558 68
Legal expenses...	44,686 86	18,053 47

N. Y. office expenses.....	14,297 94	12,118 57
Taxes, State and local.....	75,467 19	174,300 56
Insurance.....	26,839 39	26,851 73
Miscellaneous expenses.....	18,282 89	8,150 71
Car service.....	8,272 91	230 53
Extraordinary exp.	919,728 50	684,638 64

\$4,033,040 99 \$4,229,882 11
Net earnings....\$2,484,604 72 \$3,020 786 57

The gross earnings show an increase of \$733,022 97, the expenses an increase of \$196,841 12, and the net earnings an increase of \$536,181 85, over those of the previous year. The per centage of operating expenses for 1868 was 62 per cent. and for 1869, 58 per cent. The extraordinary expenses included in operating expenses in 1869 were as follows:

Renewal of track.....	\$270,538 10
New bridges.....	34,104 36
New fences.....	25,354 23
New cars.....	148,809 56
New tools and machinery.....	10,546 72
United States Government taxes	50,191 29
Rebuilding locomotives.....	17,513 33
Mississippi River Ferry.....	126,195 68
Stock yard expenses.....	1,340 37

Total, as above.....\$684,638 64

During the year 1869, the directors made large expenditures in effecting improvements and in acquiring additional property, not charged in operating expenses, to the amount of \$1,631,533 18, the details of which are as follows:

Construction of Sun Prairie extension.....	\$176,628 45
Construction of St. Paul branch	187,869 05
Decorah branch.....	116,999 56
line around Milwaukee.....	163,891 05
engine house and turn tables and surfacing track, (on new road).....	109,319 42
Purchase of elevators, (balance paid).....	100,000 00
Right of way, (all divisions).....	45,757 81
Milwaukee depot grounds.....	20,320 94
Minneapolis.....	1,125 00
Milwaukee stock yards.....	28,197 71
Minneapolis connection.....	7,871 37
Winter bridge, Prairie du Chien.	16,872 56
Equipment (12 new engines)...	163,813 42
Legal exp. (paid in New York).	7,569 80
Swamp lands, Howard Co. Iowa	3,226 20
Sinking Fund, second mortgage bonds, (cancelled this year)...	74,000 00
Renewal of track.....	120,000 00
New bridges.....	34,104 35
" fences.....	25,354 23
" buildings.....	60,426 10
" locomotives.....	8,819 92
" cars.....	148,809 56
" tools and machinery.....	10,546 71

Total.....\$1,631,533 18

These large expenditures were deemed necessary by the directors to give increased permanent value to the road.

The earnings and expenses by divisions for the year 1869 were as follows:

	Earnings.	Expenses.
La Crosse div....	\$2,331,694 64	\$1,357,103 70
Northern div. ...	718,424 39	338,589 33
Prairie du Chien division.....	2,513,690 70	1,415,915 07
Iowa and Minnesota division...	1,686,858 95	1,068,274 01
Total.....	\$7,250,668 68	\$4,229,882 11

The stockholders having authorized the same, the directors declared a dividend from the earnings of 1869, payable February 15th, 1870, on the preferred stock of \$7 per share in cash, and \$3 per share in common stock, and on the common stock \$3 per share in cash and \$7 per share in common stock. The dividend so declared increased the capital stock \$828,900 from February 15th, 1870, and, of course, adds to that extent to the present cost of the railroad and property owned by the company, making the present cost \$35,370,772, or say \$37,800 per mile.

Having completed the improvements referred to above, and paid therefor from the earnings of the road for 1869, the policy of the directors in future will be to divide the net earnings in cash to the shareholders.

The Milwaukee and St. Paul Railway Company are not now engaged in the construction of any railroad, and they have no floating debt.

In the month of May last, the extension of the line from Sun Prairie to Madison was completed and opened for traffic, and during the season, a branch line from Conover, on the Iowa and Minnesota Division to Decorah, 10 miles were built. Much of the grading had been done, previous to our acquiring possession of the road, and the building of this branch was deemed necessary to prevent the diversion of business to points on the Mississippi river.

We also, during the year, built a branch from Mendota to St. Paul, a distance of five and one-half miles, and erected a bridge across the Mississippi at the latter place, one-half the cost of which is borne by the St. Paul and Sioux City Railroad Company.

We also caused to be built a single track from Schwartzburg, on the Northern Division, to Wauwatosa, on the line of the Prairie du Chien Division, a distance of about 6 miles. This work was rendered necessary to connect the Northern Division with the Union Depot, and to avoid the delay and expense of transferring freight and passengers through Milwaukee.

We also, during the year, on grounds previously purchased for that purpose, erected the necessary structures for the receiving and caring for of live stock received and shipped over the road.

At the time we took possession of the Prairie du Chien Railroad, we found a contract in existence with John Lawler, by which, for the period of fifteen years, from August, 1863, he had the exclusive right of transferring all freight across the Mississippi River, between Prairie du Chien and McGregor. By a satisfactory arrangement with Mr Lawler, this contract was terminated on the 31st of December last, and since that time this service has been performed by the company.

NEW CONNECTIONS.

We have received from the McGregor and Missouri River Railway Company, previously known as the McGregor and Sioux City Railway, under our contract with them during the past year, about 65 miles of railroad, viz: from Calmar to Nora Springs, and expect to receive from them during the year 1870, the road from the latter place to Algona, about 63 miles.

It is not the intention of this company to accept or receive from the McGregor company, any further portion of their line, beyond that already mentioned, unless it shall appear that the business of the adjacent country will fully justify its extension.

The West Wisconsin Railway Company have extended their road from Tomah to Au-

gusta, about 66 miles. We continue to operate the road under a lease, determinable at the will of either party. The road, it is believed, will be extended to Eau Claire, 25 miles, during the present year.

The Cedar Falls and Minnesota Railroad has been built from a point on the Dubuque and Sioux City Railroad, to the Minnesota State line, about 75 miles, where it connects, by the Minnesota Central Railroad at Austin, 12 miles, with the line of this company, thus opening to us the interior of Iowa, to which we will carry large amounts of lumber and receive by the return cars, coal and the products of the country.

The Southern Minnesota Railroad Company have built, during the past year, about 40 miles of road, commencing near Austin, on our line of road, and running westerly. They propose to continue the construction in the same direction and complete about 70 miles during the coming year.

The Hastings and Dakota Railroad now extends westerly from Hastings, about 30 miles, crossing our line at Farmington. During the past year, 12 miles were built, and the company expects to reach the Minnesota River, about 20 miles further, during the year 1870.

The St. Paul and Sioux City Railroad Company formerly known as the Minnesota Valley Railroad, is understood to have been leased to the Lake Superior and Mississippi River Railroad Company. The latter company constructed about 95 miles of their line during the year, and expect to complete the remaining portion, about 55 miles, within the coming season.

The St. Paul and Pacific Railroad was extended north-westerly from Minneapolis, during the year 1869, to Litchfield, about 90 miles. It is being rapidly extended to Breckenridge, on the Red River of the North, a distance of about 180 miles from Minneapolis. The company are also extending their branch line from Sauk Rapids to Crow Wing, about 50 miles, which they expect to complete within the year 1870. From the latter point they propose to extend the line to the Winnepeg District, about 300 miles.

The Northern Pacific Northern will extend, when completed, from Lake Superior to the Pacific Ocean. It is understood that this company has secured the means, and propose, during the coming year, to build about 200 miles, which will carry them to the west boundary of Minnesota. It is also reported that the company have reasonable prospects for securing the entire sum necessary to complete the road to the Pacific Ocean. It is unnecessary to speak of the additional value of which the completion of this great line will have upon your property.

The St. Paul and Chicago Railroad Company are engaged in building their road from St. Paul southerly along the west bank of the Mississippi River. They built, in 1869, from St. Paul to Hastings, 20 miles, and expect during the present year, to extend the line from Hastings to Red Wing, about 20 miles, and from Winona to Minnieska, about 12 miles.

The Western Union Railroad extends from Racine to Port Byron, on the Mississippi River, 182 miles, and by connecting lines, is in connection with the cities of Rock Island and Davenport, and at Fulton intersects the Chicago and North Western Railroad. In the month of September next, it will be connected with this road by a branch from Elkhorn to Eagle, a distance of about 16 miles. This connection will open for the traffic of this company, the business of many thriving cities and villages in Wisconsin and Illinois, and the

richest coal and grain growing districts in the latter State. In connection with our road it furnishes the shortest and most direct route to Fulton and Rock Island for the western and northern part of Wisconsin. It will bring to us the transportation of corn, coal and other products of that section of the country, but little of which has ever passed over the line of our road.

It will be seen that about 1,000 additional miles of road will probably be brought into use, or connected with our lines, during the year 1870, from all of which we may reasonably expect a large and profitable business.

The stockholders pursuant to a law of the State of Wisconsin, at their annual meeting in June, 1869, divided their Directors into three classes to hold their offices respectively for one, two and three years.

The company own 145 locomotives, 71 first-class and 10 second-class passenger cars, 9 sleeping, 54 baggage, mail and express, 5,273 box freight, and 480 flat and stock cars.

The number of miles run by passenger trains was 946,786; by freight trains, 2,063,899 by wood and gravel trains, 377,874—total miles run, 3,388,559; of which 1,374,406 were run on the La Crosse and Northern Divisions; 1,195,779, on the Prairie du Chien division; and 818,374 on the Minnesota division.

Number of tons of freight carried eastward, 941,354; do, westward, 403,004—total, 1,344,358; of which 539,500 tons were carried on the La Crosse and Northern divisions; 500,757 on the Prairie du Chien division; and 304,101 on the Iowa and Minnesota division. Number of tons carried one mile eastward, 117,012,497; do, westward, 40,737,357—total, 157,749,854. Rate per ton per mile, 3.10 cents. Earnings per mile run, \$3.38.

Number of passengers carried eastward, 374,532; do, westward, 436,371—total, 810,903; of which 348,951 were carried on the La Crosse and Northern divisions; 292,990 on the Prairie du Chien division; and 168,962 on the Iowa and Minnesota division. Number of passengers carried one mile eastward, 19,048,090; do, westward, 25,360,310—total, 45,408,400. Rate per passenger per mile, 3.89 cents. Earnings per mile run, \$2.27.

The expenses per mile run, including all expenditures, were \$1.40. Per centage of expenses to earnings, 58 per cent. Gross earnings per mile of road, \$8,450.66; Net do., \$3,520.73.

GENERAL ACCOUNTS DEC. 31, 1869.

Cost of road.....	\$35,518,838 20
Stock of material on hand.....	328,072 21
U S. post office department...	27,160 05
Balance due from agents and other companies.....	249,489 58
Miscellaneous account.....	28,710 57
City of Hastings bonds.....	14,000 00
Interest paid on bonds due January 1, 1870	11,829 82
Cash on hand.....	963,984 02
	<hr/>
	\$37,137,084 45
Capital stock preferred.....	\$9,744,268 00
" common.....	7,665,104 00
First mort. 7 per cent. bonds.....	5,487,000 00
8 p. c. E. Div. (Palmer).....	793,000 00
7 p. c. Iowa and Minn. Div.	3,792,000 00
7 p. c. Minn. Cent. R. W....	208,000 00
8 p. c. P. du C. Div.....	3,672,000 00
Second mort. 7 3-10 p. c. P. du C. Div	1,189,000 00
Second mort. 7 per cent. bonds	1,316,000 00
Income 7 per cent. bonds.....	20,000 00
Milwaukee City 7 p. c. bonds...	234,000 00

Mil. and Western 7 p. c. bonds	247,000 00
Real est. purchase money 7 p. c.	148,500 00
Incumbrances assumed	48,341 00
Unpaid pay rolls and bills	391,733 92
Due other railways, freight and ticket accounts	81,941 42
Div. No. 9 P. du C. Division	4,132 09
Dividend No. 4	3,181 50
Coupon account	168,526 23
Income account	1,983,356 29

\$37,137,084 45

President—ALEX. MITCHELL.

Vice President.—RUSSELL SAGE.

Directors.—Alex. Mitchell, Russell Sage, Fred. P. James, N. A. Cowdrey, Walter S. Gurnee, Selah Chamberlain, S. S. Merrill, Julius Wadsworth, James Buell, James G. Garner, Levi P. Morton, Joseph M. Bokee.

Gen'l Manager.—S. S. MERRILL.

Sec and Treas.—R. D. JENNINGS.

Auditor.—J. P. WHALING.

Pacific Railroad of Missouri.

The Twentieth Annual Report for the year ending February 28, 1870, is as follows:

GROSS EARNINGS FOR THE YEARS 1870 AND 1869.

	1870.	1869.
From passengers	\$1,399,363 24	\$1,307,357 31
From freight	1,699,016 83	1,676,469 16
From U. S. Express Co.	62,640 85	62,715 32
From mails	52,037 52	45,049 92
Total	\$3,213,058 44	\$3,091,591 71

Net increase..... \$119,939 68

Gross earnings for the year	\$3,213,058 44
Less operating expenses	2,318,713 62

Net earnings..... \$894,344 82

Operating expenses, 1869 (percentage)	\$72 16
Operating expenses, 1868 (percentage)	63 49

The operating expenses for 1869 apparently exhibit an unfavorable comparison with the previous year, 1868. It is not so in reality.

The difference is accounted for in the purchase of new iron and ties, exceeding similar purchases made during the year 1868, and amounting in the aggregate to \$240,000.

Equalizing these accounts the comparison would stand as follows:

Operating expenses last year, 1869 (per cent.)	\$64 90
Operating expenses previous year, 1868 (per cent.)	63 40

Gross earnings of the Missouri River Railroad (26 miles between State line and Leavenworth) for ten months, ending 31st Dec., 1869, were:

Passengers	\$41,570 53
Freight	20,127 36
Mails	2,166 60

Total..... \$63,864 49

Gross earnings of the Osage Valley and Southern Kansas Railroad (between Tipton and Boonville) for the year ending 28th February, 1870, were:

Passengers	\$19,816 75
Freight	8,240 03
Total	\$28,056 78

At the date of the last annual report, the change in the gauge of the road, at an early day, was in contemplation. The undertaking was regarded as one of serious moment, involving, as it necessarily must, a break in the business of the road, and a protracted derangement in its operations. The labors and responsibilities involved in this change were, after being duly considered, undertaken and successfully carried through, in July last, within the time contemplated when the matter was under consideration. The cost of changing the gauge of track amounted to, as follows:

Eastern Division	\$34,078 47
Western Division	15,566 55
Boonville Branch	1,286 95
Total	\$50,931 97

Average cost per mile, east and west divisions, including Boonville branch and thirty-six miles of sidings, \$137 84. This may be regarded as satisfactory in its cost, as it was prompt and successful in execution.

The total cost of the change of gauge for labor and material in the machinery and track departments, up to February 28, 1870, amounts to \$208,646 90.

A committee appointed to investigate the matter of the several leases of other roads by this company, report very unfavorably upon them all, and conclude as follows:

"In conclusion your committee express their belief that it would have been just and proper that the stockholders of the Pacific Railroad should have had an opportunity to express their opinions and wishes upon these leases the same as was accorded to the stockholders of the Missouri River Railroad, and in fact, so carefully guarded were the interests of the stockholders of the Missouri River Railroad by their faithful Directors, that for want of their acquiescence with their first lease it was cancelled, and in its stead another lease was forced upon the stockholders of the Pacific Railroad, without their consent, of far more burdensome character. They would also express their opinion that the actions of the Board of Directors of the Pacific Railroad Company did not evince an anxiety to consult with the stockholders, inasmuch as the effort made to obtain the sentiment of stockholders upon the last and present lease was negated by the Board of Directors in the most emphatic manner."

—A corps of engineers is now engaged in surveying and locating a route for the extension of the Shenandoah Valley Railroad from Charlestown to Shepherdstown, a distance of ten miles. The survey is to be extended to Hagerstown, at which place the road will connect with the Cumberland Valley or the Reading Railroad, as circumstances may determine.

—The Winchester and Strasburg Railroad has been completed to a junction with the Manassas Railroad. The distance from Baltimore to Harrisonburg by this route is 180 miles.

—The Decatur and East St. Louis Railroad is finished from Decatur to Palmer, thirty-seven miles.

The Distribution and Extent of the Coal Fields of British America.

A LETTER FROM MR. JOHN CAMPBELL, OF NOVA SCOTIA.

[From the London Mining Journal.]

Great Britain owns over 2,500,000 square miles of land on the North American continent; 425,000 square miles of which constitute the Dominion of Canada—being less than one-fifth of the whole, and not more than one-fourth of even that can be regarded as occupied land—leaving 2,400,000 square miles still unoccupied.

The total area of Great Britain and Ireland is a little less than 23,000 square miles, with a population of about 400 persons to the square mile; while in British America we scarcely number three persons to the square mile, including the Indians. But the country is capable of sustaining at least 200 persons to the square mile—equal to a population for the whole of 450,000,000—and its natural resources are capable of sustaining this number during an indefinite period of time.

To Great Britain coal is regarded as one of the most essential elements of prosperity and power, because a very large proportion of her population is engaged in commercial and manufacturing pursuits whose existence depends on coal. Although her soil is capable of sustaining a comparatively large and prosperous population, and though its fertility is capable of endless renewal, yet she can not retain her status in the world as a first-class power for a much longer period of time than her supply of coal lasts. At the present rapidly increasing rate of consumption, her own supply within the British Isles can not last much over 250 or 300 years—a very small point in the life of a nation.

It is quite clear, therefore, that the time must soon come when she will be dependent for her very existence, as a first-class power, on her great possessions on the North American continent. The quantity of coal yet known in all other parts of the world is so limited in extent as to be utterly insufficient to supply the greatly increased demand at that distant period of time. With the exception of British America, the United States is the only country in the world that can be said to possess within its own territory an inexhaustible supply of coal.

The extent of land underlain by coal in the British Isles is supposed to be about 12,000 square miles. A large extent of that area has already been worked out where the coal were most accessible, so that it may be regarded as quite certain that the price of coal must advance greatly, even during the next fifty years, on account of increased cost of mining. The coal consumers of Great Britain will thus be taught by degrees to look to America for their supply of coal; but should America, in the meantime, all pass under the control of foreign nations, Great Britain will have lost some of the finest coal fields in the world, over 20,000 square miles in extent of which are lying in the neighborhood of good harbors, both on the Atlantic and Pacific coasts, where her ships can reach it at all seasons of the year.

The United States have control already over no less than 600,000 square miles of coal, enough to last as long, in all probability, as steam-power will be required for national defense, or as a means of securing national supremacy. The coal fields of British North America surpass, in extent and value, those

of all other countries in the world put together.

Regarding the mineral wealth of the interior regions very little is known beyond what private adventure has brought to light, and a few important facts made known by scientific men attached to the various expeditions sent from time to time to the Arctic Sea, and across the Rocky Mountains within British territory. But even in these scanty materials, when carefully examined in connection with many facts brought to light by recent geological explorations in the Western States, we find sufficient evidence to warrant the conclusion that the country abounds in mineral wealth of every description to an extraordinary degree.

It has been well known for a long time that skirting the eastern base of the Rocky Mountains, from Mexico to the shores of the Arctic Ocean, for a distance over 2,500 miles, the country is occupied by permian, cretaceous, and tertiary deposits, containing valuable beds of brown coal or lignite.

The average breadth of the trough occupied by the permian, cretaceous, and tertiary groups of strata is supposed to be about 500 miles, covering an area of 1,250,000 square miles; 900,000 square miles of this lie north of the 49th degree of north latitude, or in British territory.

Having carefully examined all the facts brought to light in connection with the subject, I find abundant evidence to prove, beyond all doubt, that true coal measures of the carboniferous group underlie the newer deposits over the whole of this vast area. Within the United States their outcrops have been discovered at various points on each side of the trough, and they are found to contain valuable beds of true bituminous coal of excellent quality, and of workable thickness, ranging from 2 to 6 feet. Those found on the eastern edge of the trough dip at an angle of 4 or 5 feet to the mile; while those exposed on the western edge are found dipping at a steep angle in the opposite direction, or eastward, after passing nearly 700 miles beneath permian, cretaceous, and tertiary strata.

At the 49th parallel, or boundary line, this great coal field can not be much short of 600 miles in breadth from east to west. This would give over 450,000 square miles in that portion of it lying between the 49th and 59th parallels of north latitude, where those vast plains occur that are so well adapted for agricultural purposes. Between the 69th parallel and the North Sea there can not be much less than 500,000 square miles that are underlain by true coal measures, making in all the enormous area of 950,000 square miles of land underlain by coal in one unbroken field.

This vast coal field is bounded on its western edge by the most easterly range of the Rocky Mountains; and it is probable that several detached basins of coal exist between the mountain ranges, in some of which anthracite will probably be found. Eastwardly it is bounded by a belt of metamorphic rocks, that extends from the Arctic Sea to the north shore of Lake Superior, on a course nearly parallel with the Rocky Mountains, for a distance of 1800 miles. The average breadth of this belt is about 200 miles. It is not much elevated above the country east and west of it occupied by the newer formations. It is known to contain rich deposits of iron ore, and will probably be found to contain gold also, for the rocks are of the same age as the gold-bearing rocks of Nova Scotia.

From the west end of Lake Athabasca, or about latitude 59 degrees north, and longitude 112 degrees west, to the 49th parallel, between 97 and 98 degrees west longitude, a point near Pembina, the belt occupied by the outcrops of the true coal measures may be traced for a distance of 900 miles. It passes a short distance west of Buffalo Lake, La Crosse Lake, Pine Island Lake, and close to the west shore of Winnipegosis Lake and Manitoulin Lake, and then e nearly through the middle of the States of Minnesota and Iowa to Boonsville on the Missouri river, where the strata of the groups are well exposed in its banks.

It is impossible now to appreciate fully the value of this vast store of mineral fuel, placed by the Creator beneath those fertile, but almost treeless, plains that form so large a portion of the interior of this great continent.

LAND-GRABS AND LAND-SWINDLES.—We notice that quite a number of Democratic papers class the Northern Pacific Railroad bill, which passed Congress last week, under the class of "land grabs," "land swindles," &c. This is a mistake. The Northern Pacific R. R. will open up untold millions of undeveloped resources. The value of the lands granted on this route is a mere bagatelle in comparison with the values to be realized from the construction of this great thoroughfare. The fact that Congress has to pile up a big bonus to tempt adventurers and enterprising capitalists to build that road, does not make it a "land grab."

Some of these papers refer to the fact that only 12 Democrats voted for the bill as an evidence of the virtue of the party. Some of them array these 12 names before the public as if it were to condemn and kick them out of the party.

The Republican party is guilty of enough genuine dishonesty without doubt, to condemn it before the public. But it is wrong and bad policy to try to distort a worthy measure into a swindle. Such efforts will make us less able to expose real wrongs.

Some sharp practice may have been resorted to to secure the passage of this bill. But that does not detract from the merits of the enterprise, the construction of which is secured by it. We are glad the bill has passed, and hope the road will soon be made.—*Kalamazoo Gazette.*

KANSAS PACIFIC RAILROAD.—Preparations are making for rapid track-laying west of Carson the first of June, to be pushed two or three miles per day. The company have offered liberal premiums to those engaged in planting gardens out on the "desert," near Sheridan and Carson. These are looking very promising. The Denver Pacific will be completed by the first of July. Track laying will then commence on the Kansas Pacific from Denver east. The Kansas Pacific will be in operation to Denver by the first of September.

—The purest iron ores in the world are said to be those found in the Huronian rocks of Northern Michigan. These ores exist in immense quantities, and the beds cover a large extent of country. They belong to the red hematite species, but are associated in some places with magnetite, and in others with limonite, a result of the secondary action of meteoric and drainage waters on the other species.

PURE WATER.—The value of pure water, as a sanitary agent, can not well be overestimated. Especially should great care be bestowed upon the selection of the water that is used for drinking and cooking, and while in many cases really excellent water is readily accessible, it is also the case that much of the water that finds its way into our bodies is very unfit for that purpose. The great evil in the case of most kinds of water is the presence of organic matter; in other words, dead and decaying animal and vegetable matter has found its way into it. In the country, where the supply of water is obtained from a spring bubbling from a hill side, and constantly changing, this difficulty does not prevail to any great extent. But in thickly peopled districts where wells are sunk beneath the surface, we often find the water so impure that it produces disease. This is especially the case where wells and cess-pools are in proximity to each other. It is a generally received idea that after water has been filtered through a thick layer of soil it becomes purified from all organic matter, and that this is true to a certain extent there can be no doubt. But it often happens that liquids highly charged with organic matter will flow through fissures in the ground for a considerable distance without losing much of their impurities. Alderman Mechi tells us that after a heavy application of liquid manure to his fields, the drains that are situated three and four feet below the surface always discharge large volumes of highly colored liquid. If this be the case under circumstances that would seem to afford the very best conditions for perfect filtration, what must be the result where the distance that the sewage has to pass is not very great, and where it constantly flows through the same fissures or channels.—*The Technologist.*

METALLIC PAINT.—A paint claimed to be superior to that ordinarily used, may be manufactured from common resin combined with zinc oxyd. The resin is first broken up into dust or small pieces, and then dissolved in benzoline or turpentine until the solution acquires the consistency of sirup or treacle, or equal parts of each of the above spirits or hydrocarbons, and any other hydrocarbon that will dry and combine with drying oils, can be used instead of turpentine or benzoline. When the solution is complete, it is gradually added to the oxyd of zinc, which has previously been made into a paste with boiled linseed oil, until the whole mixture acquires the consistency of paint suitable for use. A white paint is thus produced claimed to be of a most durable and glossy character, capable of resisting heat, moisture, cold and friction better than any other known paint. Other pigments, such as sulphate of barytes, oxyd of iron, Brunswick green, red-lead, or any other known ingredient, can be added to make any desired color of paint. One great advantage of its use is its effectual resistance to heat and moisture. It never blisters or cracks, even under the hottest sun or the most inclement weather.—*Artisan.*

—The slag from iron blast-furnaces is now used in Brussels and Paris for paving. It is said to surpass the best natural stones in strength.

—It is stated that there are now sixty-four cables in active use, the shortest of which is three miles long and the longest is 3,014, and their total length is 22,007 miles.

RAILROAD MEETING AT MARSHALL.—Another spirited Railroad Meeting was held at Marshall last Saturday. Dr. Thos. Davis was called to the Chair and W. Smith appointed Secretary.

Speeches were made by Gen. J. J. McDowell, Hon. J. L. Hughes and Jas. H. Thompson, and an additional amount of stock was subscribed.

We are informed that the total subscriptions in the township thus far amount to about \$6,000. It is believed this amount can be increased to \$15,000.—*Highland News.*

A NEW INTEREST.—It is said that a manufactory will soon go into operation at Mauch Chunk, designed to prepare the coal dust and siftings at the collieries into a merchantable fuel. Many experiments have been made during the past few years to utilize the vast mountains of screenings which are to be seen at the entrances of the extensive collieries, but generally the results have not been very satisfactory. These experiments have mostly consisted in mixing coal tar with the dust, and, after thorough trituration, moulding it into blocks, under pressure. The machinery to do this was expensive, and the coal tar not to be had usually in quantities sufficient and at rates sufficiently cheap to enable the experimenters to put the coal-dust blocks into market at rates low enough to sell, and, at the same time, high enough to be remunerative to themselves. Probably the Mauch Chunk factory people have overcome all obstacles. If they have, they will have a "big thing" on hand which can not fail to be very profitable to them.—*Pottsville Standard.*

—The South Side railroad bridge over the Appomattox river, near Farmville, Virginia, is now being erected. The company built a temporary track around the bridge, two and a half miles long, to use during the erection of the superstructure. This bridge is about 2,300 feet long, and the track is 130 feet from the water. When completed, it will be one of the finest structures in the country. The style adopted by General Mahone, the President of the consolidated line from Norfolk to Bristol, is the Fink suspension truss, and the work is being done by the Baltimore Bridge Company.

The Woodward Steam Pump Company, No. 76 Centre street, New York, have just shipped to the Lookout Water-works, Chattanooga, seven tons of their celebrated duplex steam-pumps, of a capacity of 1,500 gallons per minute.

—The work on the first section of the Arkansas branch (contracted on the 4th inst) is being rapidly pushed forward. It is expected the line will be completed, between Cape Girardeau and this road, early next month.

—During the month of April, 30,000 tons of iron ore were shipped from the Iron Mountain and Pilot Knob to the Mississippi, and but for the scarcity of rolling stock the shipments could have been doubled.

—The ironmasters of Columbia, Pa., at a meeting, unanimously agreed that pig iron cannot be produced at current rates without loss; and it is stated that within sixty days probably all or nearly all, their furnaces will be idle.

—The Northern Pacific Railroad Bill has passed both Houses of Congress, and received the signature of the President, and is, therefore, now a law.

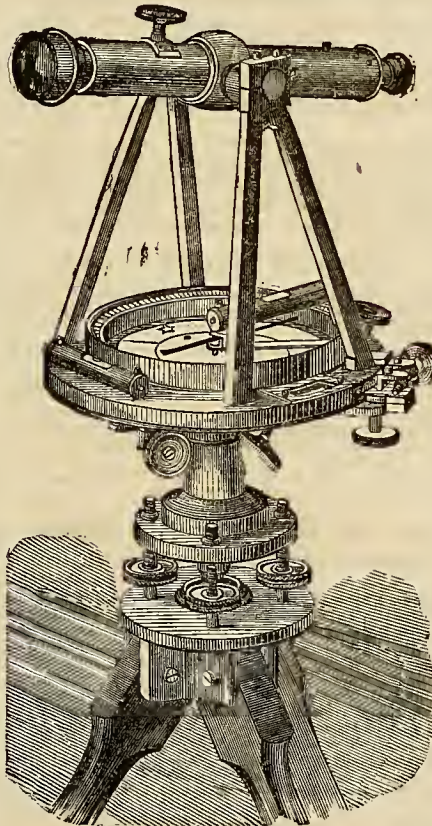
MASSIVE IRON.—Old cannon used to be burst or wedged to pieces with such difficulty that they have a very low money value. At Buffalo they cut them in two with a jet or cascade of molten pig metal.

During 100 years France and England have each granted about 80,000 patents; but within the last forty years the United States alone has granted more than 100,000.

—The first train on the Port Royal road in Georgia commenced running on the 26th ult., between Jawassee and Elsonville.

NEW YORK AND NEW HAVEN RAILROAD.—This road is earning about \$50,000 per mile per annum.

T. F. RANDOLPH,



MANUFACTURER OF
MATHEMATICAL INSTRUMENTS

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DRAFTING INSTRUMENTS, &c.,

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GRAND SCENERY!

QUICKEST ROUTE

59 Miles in Distance Saved
Baltimore & Ohio R.R.

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BALTIMORE,

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NEW YORK, and

BOSTON,

WITH THE PRIVILEGE OF GOING TO

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From Cincinnati or Columbus to Baltimore and but ONE CHANGE
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Ask for TICKETS and BAGGAGE CHECKS via Baltimore & Ohio R.R.

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JANUARY 1st, 1870.

Cincinnati to St. Louis Without Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph, Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois Central Railroad.

TRAINS RUN AS FOLLOWS:

St. Louis, Evansville and Cairo		
Mail	7:15 A. M.	10:55 P. M.
Osgood Accommodation	3:10 P. M.	8:45 A. M.
Through Western Express	5:10 P. M.	8:30 P. M.
Night Express	10:20 P. M.	6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cio. O.

C. E. FOLLET, Gen'l Tick't Ag't, St. Louis, Mo.

CHANGEABLE GAUGE CAR TRUCKS

As in use on the National Despatch Line of Cars, adapted to two or more gauges. For information apply to

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2-12-9, 52

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Established in 1836.

All kinds of Railroad Machinery

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12-5-70, 52

ERIE RAILWAY.

1400 MILES under One Management: 860 MILES without Change of Coaches.

BROAD GAUGE, DOUBLE TRACK ROUTE
FOR—

NEW YORK, BOSTON,

Providence, Albany,

PITTSBURG, HARRISBURG

Philadelphia, Baltimore,

And Principal Points in

NEW YORK, NEW ENGLAND

—AND—

Pennsylvania.

This Railway extends from
CINCINNATI to NEW YORK, - 860 Miles.
CLEVELAND to NEW YORK, - 625 Miles.
DUNKIRK to NEW YORK, - 460 Miles.
BUFFALO to NEW YORK, - 423 Miles.
ROCHESTER to NEW YORK, - 385 Miles

AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadly Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Gallion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Gallion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-first Street, New York, thus enabling passengers to reach the city per portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 60 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUC, General Southern Agent.
WM. K. BARR, Gen'l Pass'r Ag't

Best Route to St. Louis and Chicago

INDIANAPOLIS,

CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail	7.30 am	12.40 am
St. Louis and Springfield Express	2.40 pm	7.35 am
St. Louis and Springfield Express	10.20 pm	3.42 pm
Lawrenceburg Accommodation	10.10 am	2.35 pm
Lawrenceburg Accommodation	4.00 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail	7.00 am	10.15 am
Chicago Express	6.50 pm	9.30 pm
Harrison Accommodation	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)	7.00 A. M.	6.30 P. M.
do do do	9.45 P. M.	7.30 A. M.
Toledo, Detroit & Canada	7.15 A. M.	10.25 P. M.
do do do	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago	7.15 A. M.	10.25 P. M.
do do do	2.30 P. M.	5.40 P. M.
do do do	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo	7.15 A. M.	5.40 P. M.
Springfield Accommodation	2.30 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo	6.30 P. M.	10.20 A. M.
Muncie and Indianapolis	7.15 A. M.	10.25 P. M.
do do do	5.00 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond	7.15 A. M.	10.25 P. M.
do do do	5.30 P. M.	10.20 A. M.
Hamilton Accommodation	9.30 A. M.	8.05 A. M.
do do do	6.50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omnibuses call for passengers.

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Through to Pittsburgh without Change.

THE PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburgh, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

[Pittsburgh, Pa.]

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail	7.35 A. M.	9.30 P. M.
Evening Express	7.15 P. M.	3.45 P. M.
Night Express	11.15 P. M.	5.00 A. M.
Walton Accommodation	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Sup't. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Humpston Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pottsville, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
7 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:20 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesdays and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }

W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JUNE 16, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'rs.

The Financial Condition of the Country.

The other day we were standing on Third street conversing with a gentleman of eminence in society, of high character of abilities and experience; he had not been altogether in sympathy with the political administration, but he remarked that the progress, stability, and financial success of the country since the war had been wonderful. Said he, no man could have calculated, or imagined, that this country could raise such immense sums, that it could have maintained its credit so well, or be to-day in such a safe and prosperous condition. This is true, and we have no particle of doubt will continue to be true. The nation has now in all about forty-two millions of people, with the largest productive domain of any nation on earth. Look at the elements of wealth and production, and we shall be still more astonished.

There are of all kinds (male and female, skilled and unskilled), about ten millions of laborers, whose average wages, taking skilled and unskilled together, is at least a dollar per day; which, at three hundred and ten working days, gives an annual product in labor of three thousand six hundred millions of dollars. Let us make a very large allowance for drones, intemperate and professional people, and take off one-third of the whole, and we have remaining \$2,400,000,000 as the results of labor.

Now, the capital of the country in lands, factories, ships, and other kinds of productive capital, is at the very least twenty millions of dollars, which produces at least eight per cent. The result is that capital produces \$1,600,000,000 annually. We find, then, that putting labor and capital together, which is the case in all productive industry, there is an annual product of four thousand millions of dollars! A part of this—but we think not exceeding one-fourth—perishes in the using. If this be correct, we have now a net addition to the capital of the country of at least three thousand millions per annum!

This is prodigious! It explains at once why money is cheap in New York; why railroad loans are easily made; why the Government is able to pay off a hundred millions of debt in a year, and why under a taxation quadruple what it was formerly, the people feel scarcely any of the burdens of taxes, and are in all directions prosperous.

The estimates we here make are for the present year, 1870, and we doubt not the census returns will fully confirm them. Take, then, the result of our calculation as the average for the next ten years, and that no providential calamities come over the country, then the next ten years will add thirty thousand millions to the wealth of the country, which is more than the whole country was valued at in 1860. Few people know what a period of health and of abundant harvests do for a country in the creation of wealth, and such a period we have had for several years past.

Then we have escaped a great deal of financial troubles and excitement by the prudence or the *inertia* of Congress in not adopting any of the various schemes and plans of Reformers (as they call themselves) and politicians.

We have had tariff reforms, currency reforms, and political reforms, proposed by the hundreds, and happily we have escaped them, and there is now a fair prospect that we shall escape them all till after the next Presidential election. If so, Grant's first administration will end in a halo of glory; for, in such times as we have had, it is glory to end an administration with a continuance of unquenched and unabated prosperity. It is well to let well enough off alone. So we have escaped all the dangers of Congressional legislation. If Congress will adjourn with having done nothing but having passed the appropriations, and reduced the taxes fifty millions, which will be done, then the Government bonds will rise higher than they have ever been, money be cheaper, and railroad, commercial and manufacturing enterprises be active over the whole country.

The *Financial Chronicle*, of New York, takes a hopeful view of our export trade for the summer, but we think hardly up to the reality. It says that in the three summer

months last year we exported over thirty millions in the articles of cotton, breadstuffs and tobacco; but that the cotton crop, being much larger, the harvests heavier, and the wants of Europe greater, that we shall really export a much greater amount this year.

The cotton crop was at least 600,000 bales greater, and the stock on hand in New York double what it was last year. The estimate of the *Financial Chronicle* for June, July and August is:

Cotton.....	\$24,000,000
Breadstuffs.....	15,000,000
Tobacco.....	10,000,000

Total.....\$49,000,000

This is nearly twenty millions more than it was last year; but this is no full view of the real amount of exports. For example, there are the immense amounts of provisions, cheese, petroleum, domestic manufactures, &c., &c. The total amount of exports for the current year will undoubtedly reach four hundred millions.

Thus, on the data we have given, there must be for some months to come a season of great financial ease and prosperity. In addition to these facts, there is a prospect of abundant harvests. So far in the season, all crops promise well. Should there be large harvests this year, prices would indeed be lower; but that very fact will induce larger exports, while the people at home will be abundantly supplied.

Last year we had the extraordinary scene of politicians complaining of the administration because the price of wheat was low!—as if the administration could prevent an abundant harvest, or as if it were not the best thing that could happen to the people.

Proceedings on 'Change.

LOUISVILLE CANAL.—ROCKPORT R. R.

The following telegrams were received by the Chamber of Commerce:

"House passed River and Harbor bill. Two hundred and fifty thousand dollars for Louisville and Portland Canal, and fifty thousand for Ohio River. Understanding that two hundred thousand more would be given next winter.

"Kanawha and James River line to be surveyed.

(Signed) "JOE E. STEVENSON."

"Appropriation for Louisville Canal passed the House, as recommended by the committee, for two hundred and fifty thousand dollars.

(Signed) "P. W. STRADER."

The Chamber of Commerce to-day ratified the action of the committee, recommending the lease of the hall they now occupy for nine years from next December.

The resolutions introduced before the Chamber last Saturday morning in reference to the Rockport Railroad were amended so as to empower the Board of Officers to confer with the Board of Trade in regard to employing and compensating a suitable person, or persons, to survey said route. The resolutions, as amended, were adopted.

SOUTHERN PACIFIC R. R.

RESOLUTIONS OF CINCINNATI MERCHANTS'
EXCHANGE.

The subject of the Southern Pacific Railroad was presented to the Chamber of Commerce to-day, (June 15), in the form of a report, accompanied by the following preamble and resolution:

WHEREAS, It is the opinion of this Chamber of Commerce, of the city of Cincinnati, that the construction of the Southern Pacific Railroad from Memphis, Tennessee, upon the Mississippi river, to San Diego, upon the Pacific ocean, by way of El Paso, would largely aid in developing the agricultural and mineral resources of the country; would effectually protect our south western settlements from the incursions of savage tribes, and go far toward settling the Indian problem forever; would increase our commerce, strengthen and bind together our extended territory, and by enlarging the area of taxation, give additional security to the public credit; and,

WHEREAS, The great distance which intervenes between these highways to the Pacific—a distance as great as from Cincinnati to New York—together with the vast local as well as through traffic which must necessarily pass over them, precludes all possibility of their becoming rivals—each having full scope to work out and accomplish the object of its creation—the development of the resources of our common country; therefore

Resolved, That this Chamber heartily indorse the proposition to afford liberal aid to the Southern Pacific Railroad, by such donations of public lands lying along their proposed route as may be necessary to secure the early completion of said road: Provided, That the land so donated shall at all times be subject to purchase by actual settlers at a price not to exceed the Government price of land adjoining.

[Signed]

ROBERT HOSEA,
SAM'L DAVIS,
ADOLPH W. WOOD,
B. W. WASSON,
ABNER L. FRAZER,
Committee.

On motion of Mr. S. Lester Taylor, the report of the committee was accepted, and the committee discharged.

On motion, the resolutions were adopted, and the subject of the report referred to the Board of Officers, to prepare as they deem advisable, and forward to our Representatives in Congress.

The commendations of the Southern Railroad route by the Chamber of Commerce are not in more fulsome terms than the merits of the route deserve, nor the necessities of the country, and especially of the Southern States, demand. The Southern route was the first that was prominently brought before the attention of the country, and its merits are well understood by the country at large, viz: low grades, less altitude in crossing the backbone of the continent, perfect immunity from snow, a natural road-bed nearly all the way, and the shortest line to the Pacific ocean, taking even Chicago as the starting point.

These being facts, not only the Southern States, but also the entire country, is deeply interested in its construction.

The Union Pacific is built. It was constructed as a "war measure;" it satisfied the cravings of California, and saved that State to the Federal cause, and quadruple the cost of the road to the general Government; it has developed the resources of the section of the public domain through which it passes; saves annually more to the Government than the interest on its entire cost (although the road is not only self-sustaining, but remunerative); has brought into market and made valuable lands that would otherwise have been unsaleable for at least an hundred years; has bound the East and West together with "bands of iron and hooks of steel," and has awakened a commerce on our Pacific coast that will speedily rival, if not surpass, that now existing on the Atlantic.

The construction of the North Pacific has been guaranteed by the recent action of Congress, so that we may now consider it a fixed fact. This will result in advantages to the country fully equal in extent to those of the Union Pacific, as the route is through a better country. It will cross, for nearly a thousand miles, on the great cereal basin of the continent, and will be the outlet of a territory as genial in climate and as extensive as ten States like Ohio. With lower altitudes in the mountains than the Union, its practical working will be less subject to interruptions by snow, while its terminus on Puget Sound will give it a distinctive traffic of its own, and make it practically the shortest route for the trade of China and Japan.

The fearful outcry that is raised by some of the journals of the day about "wasting the public domain," is all bagatelle. The truth is, nothing is, or has been, wasted; but that which was worthless is made valuable, because available. This outcry is not the result of "over-weening honesty," and a profound desire to protect the public interest, but an attempt to play the demagogue by catering to any popular cry that will catch votes in the struggle for party supremacy. We have, personally, not a stiver's interest in the construction of any or either route, either present or prospective, but have always advocated all, more especially the Northern and Southern lines.

As before stated, the Central has been in operation some time, and the Northern, by the magnanimous action of Congress, and the good fortune it has had to fall into good, able and energetic hands, is now fully assured. We wish we could say as much for the Southern. Possessed of all the natural advantages enumerated above, it had the misfortune to suffer a like calamity with the man who "went down from Jerusalem to Jericho." This was its early history, and all that can, up to this time, be recorded of it. The substantial and

munificent legislation of Texas, in the beginning, attracted the cupidity of adventurers who have cursed the Southern Pacific Railroad from that day to this. Last, if not least, in the long catalogue of venality and corruption, is the recent "operation" in Paris.

Still the road is not built, nor any showing in that direction. A year ago last spring, at the Southern Commercial Convention, it was unblushingly stated that three hundred miles of iron had been bought in Europe, and that some of it was then on its way to this country.

There are two parties now besieging Congress for the control of this scheme, and "never a barrel of better herring" among them. The one claiming under the "Memphis and El Paso," and headed by the "Path-finder," the other under the old "Texas Western," and manipulated by some adventurers from New York city and Boston. This last ring is composed of the parties who are building a railroad to be owned by themselves across the State of Alabama, upon the credit of the State, and who are so persistently urging the passage of the Congressional charter for the Cincinnati and Chattanooga Railroad, whereby they hope to manipulate the Cincinnati trust fund of ten millions. There really seems to be no bounds to modesty. Would it not be an admirable arrangement—a really nice thing—and perhaps as Cincinnatians we ought not to object to it, to have a railroad commencing at San Diego, with an arm resting on Guymas, built on the credit and bounty of the general Government, through to Shreveport, thence, by the aid of swamp lands and other State bounties, with a few sops thrown to local interests, via Vicksburg to Meridian, thence via the Alabama and Chattanooga (State aid) road to Chattanooga, and thence to Cincinnati by our own dear, darling Southern road, paid for by our money, but owned by the ring, and Cincinnati to be the Eastern terminus of so long a line. San Diego to Cincinnati *under one management, and without change of cars!* Isn't it a big thing? It is really a Boston notion! Why, such ærial people as Gould and Fisk, Vanderbilt, J. Edgar Thompson, Tom Scott and old man Garrett would be no where, and a new man, with the smell of codfish still lingering about him and oozing through his "store clothes," would be "king of the Cannibal Islands."

Without any equivocation, we are in favor of the Southern Pacific Railroad, and liberal aid by Congress to secure its early completion. Justice to the commercial interests of the South demands it, as well as the development of the material interests of the country, and if the enterprise is placed in the hands and under the control of the best and leading minds of the South, "natives to the manor born," and without the taint of speculative avarice, even if headed by

Jefferson Davis, R. E. Lee and Wade Hampton, the nation would say amen; but to place it in the hands of the mountebanks and acrobats who are now buzzing around the ears of Congress, would meet with the condemnation of all honest citizens.

Cincinnati Southern Railway.

The following kind response to an inquiry relative to the Cincinnati Southern Railway, sets at rest all queries as to the future of that enterprise in Tennessee. The editor of this paper was informed by a friend of the road that an amendment had passed, the nature of which, however, he could not explain; hence the inquiry and response:

HOUSE OF REPRESENTATIVES,
NASHVILLE, TENN., June 16, 1870.

HON. T. WRIGHTSON, EDITOR RAILROAD RECORD.—*Dear Sir:* Your favor of the 13th inst. has been duly received. I will state that Col. G. misinformed you if he stated to you that an amendment had been passed amending the grant to the "Trustees of the Cincinnati Southern Railroad." No amendment has passed; none will pass, unless it is approved by the Trustees themselves.

The Trustees of the Cincinnati Southern Railroad have vested rights under the Act passed at the last session giving the right of way to them through the State of Tennessee.

Under our Constitution and laws, vested rights can not be interfered with, except by consent of the parties in whom the rights are vested.

I shall guard the interest of said Cincinnati Southern Railroad while a member of this Legislature.

With the hope that the "Queen City" and the "Mountain City" will shortly be united by rail, despite Kentucky opposition,

I remain, truly yours, E. A. JAMES.

Southern Items.

GREENVILLE & COLUMBIA (S. C.) R. R.—The Columbia *Phoenix* says it has been reliably informed that an order has recently been given by the officers of the Greenville and Columbia Railroad, for two new locomotives and several passenger cars. A lot of new iron and chairs are also on the way, for the purpose of renewing and refitting certain portions of the road.

This is an evidence of thrift that we are pleased to observe.

SAVANNAH VALLEY RAILROAD.—There was to be a meeting of parties interested in the revival of this important project, on Wednesday, June 8th, at Abbeville, C. H.

The Augusta *Chronicle and Sentinel* says that "those who have called for the revival of this project are deeply in earnest, and are determined to put forth all their energies to attain success."

This is the kind of reconstruction that meets our views exactly.

—A Union passenger depot is to be erected at Columbia, S. C., by the South Carolina and the Charlotte, Columbia & Augusta railroads.

The Ferguson Railroad Act.

IMPORTANT RAILROAD CONTRACT.

It will be remembered that when the Ferguson Act was passed by the Legislature of Ohio to enable Cincinnati to construct a railroad to the South, a similar bill was also passed enabling Toledo to construct a short link to connect some of her lines of road. We understand that the question of constitutionality, etc., has been very thoroughly tested in all the Courts, and the result is a completion of the contract under that law. The Toledo *Commercial*, of June 19th, says:

The Toledo Railroad Trustees yesterday agreed upon the terms of a new contract with Mr. J. Edwin Conant, materially different in its provisions from the one concluded between the same parties in April last. The provisions of the new agreement are substantially as follows:

I. The Trustees agree to pay to Mr. Conant \$400,000 of the Toledo and Woodville Railroad bonds, to build, equip and operate said road from the Northern terminus thereof on the North-east line of the City of Woodville, crossing the Maumee river by a good and suitable Railroad Bridge, and furnish proper depots on the north side, with the machine shops on the same side, for the road and the roads immediately connecting North and South; thence to the curve in the Dayton and Michigan road, and on the present surveyed route to Woodville; to make the same in all respects a first-class railroad, with all necessary appurtenances, and to have the same fully completed within eighteen months.

II. Mr. Conant agrees to build or cause to be built an independent first-class railroad from Woodville to Mansfield, Lexington or some point south of Lexington, on the Sandusky, Mansfield and Newark Railroad; also another such road from the North-east line of Toledo to Ann Arbor, and to run said roads in close connection with the Toledo and Woodville as one road. The agreement as to the Ann Arbor line is conditioned only on the compliance of the friends of that route with the agreement entered into with Mr. Conant as to local aid, of which there is no reason to entertain a doubt.

III. Payment in bonds is to be made by the Trustees in sums not exceeding 70 per cent. of estimates as the work on the Toledo and Woodville road progresses, the remaining 30 per cent. to be paid upon the completion of such road and of the two connecting roads stipulated to be built.

IV. Upon the completion of the Toledo and Woodville road, the Trustees are to lease the same to Mr. Conant or his assigns for 999 years, upon the terms and conditions set forth in the former contract; and he agrees to pay for the same a percentage on \$400,000 equal to the dividend on a like sum paid to the stockholders of the road from Lexington to Ann Arbor, the lease to be forfeited in case of non-payment of such compensation.

It is proper here to state that the necessity for a new arrangement for the Northern road arises from the recent decision of the Michigan Aid Railroad question, the friends of the Ypsilanti route being unable, aside from municipal aid, to furnish the requisite means. We understand that the extension of the road to Owosso is expected to become part of this arrangement, from which point it is the purpose to extend it on to the mouth of the Manistee.

Railway Enterprise.

WHAT HAS BEEN ACCOMPLISHED IN THE LAST EIGHT YEARS.

The New York *Express*, a very interesting paper for railway men, says it will be remembered by many that after the passage of the Pacific Railway acts in 1862, authorizing the construction of an iron road from the Missouri river across the uninhabited plains to the Pacific Ocean, there were few persons to be found sanguine enough to believe that the whole grand scheme would be found in complete operation within seven years. On the other hand there were plenty of croakers to predict that the road would never be built; or, at the furthest, it would halt at the Rocky Mountains. Equally incredulous were the people on the Pacific Slope, who saw the mighty Sierra Nevada with its snowy crests gleaming over them three miles high, like a huge, impassible rampart. Yet there were half a dozen men in California, and perhaps a dozen or twenty in the Atlantic States, who had faith to believe the thing was practicable and profitable. We mean that kind of faith which men were willing to back up with their money. During 1862 and 1863, the Union Pacific franchise, with all its privileges of aid from the Government, so much talked of lately, could have been bought for a comparatively small sum. There were only a few men who had the proper temperament to induce them to take stock in such an enterprise, the capitalists being especially shy of anything so remote or contingent. Luckily, there were enough for the purpose.

The road has been built, and is an enduring monument of the foresight and perseverance of its projectors. It is not only the longest railway in the world, the best appointed in America, but, as the results show, it has command of a business which, although merely in its infancy, is going to surpass all others of equal dimensions. If the original friends of the road should find their profit by their sagacity they will as richly deserve their reward as Stephenson for his improvements in the locomotive engine, Whitney for his cotton gin, Morse for his telegraph, and Field for his part in laying the Atlantic Cable. Bayard Taylor, writing from Omaha, thus speaks of the traffic already passing over the Union Pacific:

"The amount of business is astonishing. The daily train of from ten to fifteen cars transfers from 400 to 500 passengers to the four roads across the river, and the departures westward are fully equal in number. It will soon be necessary to dispatch two express trains daily to San Francisco. All the quarters of the world are already represented here. Trunks with Japanese, Chinese and Australian marks are piled on the platform, beside those of England and France. But this is the mere beginning—the first little rill of circummundane travel, which in five years more will be a full, permanent stream."

—The Arkansas Western Railway Company, has been organized to construct a railroad from some point on the line of the Little Rock and Fort Smith Railroad, near Van Buren, in a northerly direction, through the counties of Crawford, Washington and Benton, passing through or near Cane Hill, Fayetteville and Bentonville, and intersecting the northern boundary of the state." The directors are W. P. Denckla, C. G. Scott, J. H. Haney, A. P. Robinson, Edward Wheeler.

The Atlantic & Great Western Railway.

The following circular has been issued by James McHenry, President of the Atlantic & Great Western Railway Company to the bond and debenture holders. It is dated May 19, at the office of the London agency:

The Atlantic & Great Western Railway was introduced into Europe in 1857, with the active assistance of the American Ministers in London and Paris and supported by letters from Governors of States (one of whom is now Chief Justice of the United States), from members of the Cabinet, of Congress, and of the Judiciary in the several States through which the railway was to be constructed, and from leading bankers.

Thus vouched, it was not difficult to raise the necessary capital. In 1860 I undertook the works, and pushed them rapidly to completion. At the end of 1864 the road was opened throughout; and, until the summer of 1866, the traffic and revenue justified the high expectations created by the introductions referred to. The traffic has gone on increasing in a ratio second to none in the United States. The suspension of payments in January, 1867, by a resolution of the Board of Directors, who had only the day previously managed to secure their re-election for a year, was a wanton outrage on the rights of creditors. Since the suspension, by the published statements of the several receivers and the lessees in charge, over £3,000,000 is acknowledged to have been earned (but I have good reason for believing that the actual receipts exceeded £4,000,000) not a shilling of which has reached the creditors. To restore the revenues of the railway to its proprietors, the radical measures of a foreclosure and reconstruction have become necessary, the several attempts during three years to arrive at this result by other means have from various causes failed. What we want, in order to secure to all *bona fide* creditors their just rights, is an early issue of the new securities according to the proposed plan, and a faithful and intelligent working of the road hereafter. There is no difficulty in securing such a management of the new corporation as desired, under the control of General McClellan as President.

On the 22d of February I issued a circular suggesting a scheme for a settlement. Since then I have been engaged in negotiations with the various committees, and parties representing a large amount of the indebtedness, and have agreed upon some modifications, and secured such support as assures its success without deranging the safe and equitable distribution of the revenue; still limiting the absolute engagements for coupon payments to the moderate amount required for the first and second mortgages, but giving the bonds, whose interest is made contingent on the actual earnings, the control of the affairs of the company until it demonstrates its ability to meet their demands with regularity.

The modifications consist of:

1. Making all the new bonds payable in sterling.
2. Giving preference shares for the overdue coupons of the consolidated bonds instead of ordinary shares.
3. Giving to the certificates of debenture of 1864, 25 per cent. of third mortgage bonds instead of ordinary shares.
4. Limiting the capitalization of the overdue coupons to the 1st of July, 1870, inclusive.

General G. B. McClellan and W. B. Dun-

can, Esq., of Messrs. Duncan, Sherman & Co., have consented to act as trustees for the carriage of the proceedings on behalf of the creditors, and it is understood that the Hon. Allen G. Thurman, of Ohio (who from his place in the United States Senate has taken a prominent part in opposing the wild schemes of several American railways), will become their colleague. Messrs. Barlow, Larocque, and McFarland continue to act as counsel in New York.

It is of the utmost importance that the bondholders and other creditors should promptly support the company in the present efforts to protect their property by the reconstruction proposed.

Copies of the amended scheme and provisional form of assent for signature will be furnished to all creditors whose addresses are known. They can be obtained from the Secretary of the London Agency, 5 Westminster Chambers, Victoria street, London; also from Messrs. E. F. Satterthwaite & Co., 6 Austin Friars, E. C. London; and Messrs. Coates & Hankey, 24 Gresham street, E. C., London.

JAMES McHENRY,
President.

Reduction of Fares.

On Monday last a simultaneous reduction of five dollars on the previous rate between Chicago, New York and Boston, went into effect on the Michigan Central, Michigan Southern and Pittsburg & Fort Wayne routes. The fare to New York is now \$20.00; to Boston \$21.25. Fast trains are thus supplemented by cheap fares, and the effect it is hoped will stimulate passenger travel to unwonted activity. This action is not necessarily the initiative of a war on the part of the various roads, but the result of a mutual disposition to protect their traffic from the competition of low fares by the combined water and rail routes. The public are not slow to accept the benefits of cheap and quick transportation, while a consequent liberal increase of patronage compensates the roads for a reduction of profit that is more apparent than real. Indeed, it is the avowed belief of not a few prominent railroad men that a fixed rate of \$20.00 from Chicago to New York would swell annual revenues to a larger figure than ever before, if once adopted as a permanent policy of the through passenger business.

From Cincinnati to Eastern points the fare on same date was reduced as follows: To New York, from \$22.50 to \$20.10; to Boston, from \$26.00 to \$21.35. The Erie and At. & Gr. Western first announced a reduction as above, which was promptly followed on the part of the Little Miami, Pan Handle and Pennsylvania Central by a similar reduction to New York, with corresponding reduction to Philadelphia, Boston, Baltimore and Washington.

The Erie, not content with this reduction on through business, has also reduced its local fares, which are now: Buffalo to New York, \$8.00; Dunkirk to New York, \$9.00; Rochester to New York, \$7.50; Salamanca to New York, \$8.00. This movement of Erie has stirred up the ire of its Central competitor, which now refuses to receive tickets from the former between Buffalo and Suspension Bridge, and has formally annulled all pre-existing arrangements between the two roads. With Pennsylvania Central joining in the *melee*, the fight will be an interesting triangular one.—*C. Review.*

Steel Rails.**IMPORTANT REPORT THEREON OF RAILROAD COMMISSIONERS OF MASS. TO THE STATE SENATE.**

This report is a most interesting and useful compilation of facts elicited in American practice with regard to the qualities and economy of steel rails. The Commissioners received replies from 57 roads, 20 of which had made no trials of steel rails; 11 had tried them, only a few, by way of experiment, and find them, so far, greatly superior in durability to iron rails in similar situations. The remaining 26 have laid steel rails varying from 100 to 15,000 tons; and their reports are generally very much in favor of the use of steel rails, especially where the track is subject to very heavy service. The rails vary in weight from 52 to 67 pounds per yard, and are from various manufacturers, both in Europe and this country—all, however, doing very good service. The cost of steel rails, as given in these replies, varies from 50 to a little over 100 per cent. more than the cost of iron. The *Engineering and Mining Journal* tabulates the following, which it only claims to be approximately accurate, since the returns from the different roads are quite imperfect:

Name of Railroad.	Tons steel rails....	Months in use....	Tons steel rails....	Months in use....	Miles of both.....
Eastern, Mass.	410	12	...	...	4
Boston & Maine.....	100	30	10	40	1
Boston & Albany.....	1,200	42	50	...	12
Boston & Providence....	1,400	48	5	48	15
Old Colony	13	60	...	48	1
Vermont Central.....	100	20	...	...	1
Ogdenburgh.....	20	10	...	...	...
Connecticut River	405	48	30	36	5
New York & New Haven.	5,500	36	...	...	56
Erie	8,500	30	3,000	...	115
Camden & Amboy.....	1,500	30	...	...	17
North Pennsylvania....	550	48	100	...	7
Phil. & Germantown	250	48	...	...	4
North Central Penn.....	700	40	...	...	3
Lehigh & Susquehanna..	510	24	...	...	54
Phil. & Reading	700	50	...	...	8
Phil. Wilm. & Balt.....	3,100	60	...	12	40
Pennsylvania	19,240	60	137	24	190
Pitts. Ft. W. & Chicago..	5	36	...	...	6
Tol. Wabash & Western..	500	24	...	...	5
Cin. Ham. & Dayton....	400	12	...	...	4
Michigan Central	298	33	...	...	3
Michigan Southern.....	200	14	...	...	2
Chicago & North-western	1,000	65	...	...	10
Chicago, Bur. & Quincy.	300	26	...	...	3
Chicago, R. I. & Pacific..	1,600	48	...	...	18
Chicago & Alton.....	800	49	...	...	8
Total.....	54,421	...	3,332	...	592

The Commissioners draw from the report the following conclusions:

I. That extremes of temperature do not injuriously affect the steel rails. The Grand Trunk railway reports them as not injured by a temperature of 30 degrees below zero of Fahrenheit, and no other road appears to find them unable to stand a cold winter.

II. That the durability of steel rails far exceeds that of the best iron rails. No steel rail has yet been reported as having been worn out. The Providence road reports steel rails as having outworn 13 iron ones, and apparently good for as many more. The Erie railway report their steel rails as having outworn 13 sets of iron rails, and showing scarcely any signs of wear. The Phil. Wil. & Balt. road report them as having outworn 17 iron rails, and showing little wear. The Chicago & North-western say that steel rails have out-

worn 15 iron rails, and show no perceptible wear.

III. That heavy grades and sharp curves do not materially affect the wear of the rails.

IV. That the rails should be carefully inspected before laying, and that usually all flaws and imperfections can then be discovered, and subsequent breakage in the track prevented. The present great risk to life and property from this cause may be almost absolutely obviated by the application to rails of proper tests and a small additional expenditure of money.

V. That square notches punched in the base of the rail are very objectionable, appearing to start a seam of fracture. Opinions are not agreed in regard to punching the stem of the rail, but the majority approve of drilling instead of punching. A suspended joint, requiring no holes in the rail of any kind, appears to be most suitable for steel rails. As to

STEEL-HEADED RAILS,

they have not yet had so long a trial as the steel rails; and among the first that were made, instances of perfect weld between the iron and steel were not uncommon. Some such cases were observed by the Commissioners during their visits of inspection. Of late, however, from careful observation of the results of their several trials, the manufacturers, both in this country and in Europe, have become able to furnish steel-headed rails which may be depended upon as having a perfect weld; and as this kind of rail can be afforded at a less price than the all steel, probably the use of them will rapidly increase. Of 21,886 steel-headed rails made at Trenton, and laid on the Erie road, only 107 proved defective. There is also a

STEEL-CAPPED RAIL

made by Booth, not depending at all upon the weld of the steel and iron, but upon the mechanical grip of the steel top upon the iron, the trials of which upon several roads have thus far given good satisfaction.

COMPARATIVE STRENGTH.

Besides their greater durability, steel rails have also the advantage of greater strength and stiffness for the same amount of material; the comparative strength of similar sections of steel and iron rails being as 5 to 3, and the comparative stiffness as 4 to 3. Since the first introduction of railroads in this country, the weight of engines has been doubled on the average, and sometimes increased even more. But, as a general rule, the weight of the rails has not been doubled, and when this has been done, a corresponding advantage has not been gained in stiffness and durability. Steel rails, therefore, are just what was needed to meet the requirements of heavier engines and heavier traffic.

ECONOMY OVER IRON.

With steel rails costing fifty per cent. more than iron rails, if the iron will not last more than five years, it is more economical to use steel. Reckoning the iron rails at \$80 per ton, that it cost to exchange the old ones for new \$40 per ton every fifth year, and \$3 per ton for expense of relaying, and allowing 7 per cent. compound interest, the ton of iron rails at the end of the tenth year, including the two renewals, will stand at \$258; the ton of steel rails, at \$120 per ton, also at compound interest at 7 per cent., will stand at the end of the tenth year at \$247.88; is then stronger than the new iron rail just laid down, and likely to outlast 15 or 20 more of them.

THE CONDITIONS OF THE PROBLEM,

however, so constantly vary, that it is not advisable to lay down any precise rule on this subject. Each road, when time for renewal of its rails arrives, must take into consideration the amount of tonnage passing over its road, with the rate of speed, also the probable increase of service during a certain number of years, in order to ascertain the probable life of good iron rails. The difference of price between iron and steel must be considered and compound interest upon it computed for the period during which the iron would probably last. The rates of interest ruling in different sections of the country, and the credit of each particular road, thus become controlling elements in the problem, and render it impossible to formulate any rules.

ENGLISH EXPERIENCE.

The results arrived at in England are very similar to those reached in this country. No steel rail has yet been reported as worn past further service; and among numerous instances of their great durability as compared with iron, the Commissioners will only quote one on the London & North western railway, of a steel rail which had outworn twenty-three iron ones opposite to it, and was then taken up in consequence of an accident, not from fair wear and tear. At this time about five sixteenths of an inch of the top had worn off.

THE LIFE OF RAILS

may be measured by the product of the weight and the speed. Experiments in England "indicate that 200,000,000 of tons may be carried over good iron rails at a speed of one mile per hour; and any railway company knowing the load which annually passes over their line, and the speed of the trains, may, by multiplying the one by the other and dividing 220,000,000 by this product, ascertain the life of iron rails in years" on their road or rather what it should be; and if it does not come up to this result in practice, it is an indication that the quality of the rails is poor. On the Lancashire & Yorkshire, 62,399 trains, with a gross tonnage of 12,151,784 tons, wore out the rails (of the best iron) in seven and one fourth years. On the Great Northern, with a greater rate of speed, 65,529 trains, with a tonnage of 13,484,661 tons, wore out the rails in three years. At another point on the first-named road, on a level where all trains draw up, rails of the same character required 203,122 trains and 38,803,128 tons to wear them out in seven and one-fourth years. The steel rails mentioned in the last paragraph but one had carried 95,577,240 tons when taken up. The rate of speed at this point is not given, but assuming it to be the same as in the case of iron rails last mentioned, the steel rail has already carried two and a half times as much as the iron, and was not half worn out. In regard to

STEEL-HEADED RAILS,

it was found in England, as in this country, that some of those first made proved defective from imperfect welding; but those of later manufacture have been entirely satisfactory. And in regard to comparative economy in the use of iron or steel, Mr. Sandberg's estimate, reckoning interest at five per cent., is that "where ordinary iron rails are worn out in five years or less, solid steel rails are most economical; and where they last over ten and up to fifteen years, steel-headed rails would be the cheapest; but if the iron rails will last from 15 to 20 years, or more, it is cheaper to use them."

Baltimore and the West.

At the regular monthly meeting of the Directors of the Baltimore and Ohio Railroad Company, on Wednesday last, President Garrett gave an extended account of his recent visit to the leading cities of the West, in the interest of the Baltimore and Ohio Railroad. Concerning the relations of Cincinnati and that great line he indulged in the following interesting remarks:

"For Cincinnati the advantages are most striking. The average distance in favor of Cincinnati in communication with Baltimore, as compared with the three great lines to New York, is 240 miles. Can it be possible that, with such immense geographical advantages, with its unequalled piers and fire-proof warehouses, furnished without charge for foreign steamships, with its cheapest and enormous facilities for transportation to and from the West—can it be possible that, if Baltimore will only continue her vigor and enterprise, will furnish additional lines of steamers to Europe—that the business of all these vast regions will not be attracted through their interests to Baltimore instead of New York? Can it be possible that, when more than two hundred miles of land transportation can be saved in the interest of the farmer and the consumer in the West, this great advantage will not be availed of?"

"The Queen City will yet reach its highest prosperity and command increased trade through the use of its shortest and cheapest outlet to the ocean. It could thus compete with any Western city, and its situation in relation to the trade of great territories would be superior and impregnable. We said to her citizens that Baltimore had long recognized the strength of Cincinnati; that year after year the preceding administrations and the present administration of the Baltimore and Ohio road had continued to spend its capital without net results in constructing the shortest line between the cities, until now the company has upwards of \$10,000,000 invested in the line from Grafton to Cincinnati. Eight millions of dollars have been invested in the Parkersburg branch, a million in the bridge at Parkersburg, connecting the Marietta and Cincinnati road with the Baltimore and Ohio, and a million of aid has been extended to the Marietta and Cincinnati Company.

I called the attention of our friends in Cincinnati to the fact that the city of Baltimore, the largest proprietor in the Baltimore and Ohio road, had aided the company by granting it increased riparian rights at its marine terminus, Locust Point, and that the company had built great piers, extending six hundred and fifty feet into the river, with a depth of water sufficient for the largest steamers; and that the Baltimore and Ohio Company tendered these grand and costly piers to all these foreign steamship enterprises without charge; that these great facilities—finer than any on the American continent—were offered by the Baltimore and Ohio Company to attract trade to Baltimore, and the result was that every foreigner who visited the city was struck with these facilities, and left Baltimore convinced that its future was simply a matter depending upon the enterprise of its citizens, and that the greatest commercial prosperity awaited it if this liberal and enlarged policy continued to be pursued.

"I found upon examination that the work upon the bridges over the Ohio River, which has been a subject of so much anxiety and difficulty, was rapidly approaching completion; that on the 15th of the month the three

great piers for the wide spans at Parkersburg would be completed and ready for the superstructure, and I am happy to announce to the board that the iron work has been prepared, and that in the course of a few days the erection of the superstructure will be commenced.

"At Benwood similar progress has taken place, and the river piers for that bridge will be completed in a few days.

"The last difficulty in connection with the right of way for the approaches has also been removed within the past week.

"A great increase of business will result from the completion of these bridges.

"The greater attention attracted to Baltimore has already caused a large increase of business from Ohio. Within the past six months the territory between Cincinnati and Indianapolis, which did not previously use our port, has forwarded 89,000 barrels of flour.

"The business of the Lake Erie division shows an increase of thirty per cent., and the revenues of the Baltimore and Ohio road and its branches for the month of May, notwithstanding the alleged depression of trade, show an aggregate of \$1,022,862 01.

"The enterprises in which the company is engaged are very costly, but the fruits justify the additional debt which the company is creating."

NEW YORK CENTRAL RAILROAD.—The officers of the New York Central and Hudson held a meeting to-day, in this city, and re-elected Mr. Cornelius Vanderhilt as President, and Mr. William H. Vanderbilt as Vice President. The Executive Committee is the same as last year. A statement of the affairs of the company for the past seven months was submitted, and we learn that the earnings of this company have been \$1,000,000 for the last seven months in excess of the same time for the last year, and the running expenses only 41½ per cent. of the earnings. In the report of the Central for the year ending September, 1867, it is stated "the transportation expenses for the year ending September 30, 1869, were 76 20-100 per cent. of the gross earnings for the same period." Here is a saving of 34 70-100 per cent. The stockholders will not object to such economy in the running expenses!—*New York Tribune*, June 6.

The company have, as is well known, declared a dividend of 80 per cent. on the original issue of stock, adding by so much to its value, and making, in fact, a total dividend of \$23,000,000. The Government has assessed a tax of 5 per cent. on this sum, which amounts to upwards of \$1,100,000. The company, claiming that this is neither a dividend nor an increase of stock, but merely a promise to pay the stockholders at some future time, are making strenuous efforts to have the tax remitted.—*Ex.*

The Erie war has been renewed. Commodore Vanderbilt has notified Jay Gould that all arrangements between the New York Central and Erie Railroads are void, and that Erie tickets between New York and Buffalo and Niagara Falls will not be received on the Central. The Pennsylvania Railroad has received the same communication, and negotiations are said to have been opened between that road and the Erie road for alliance offensive and defensive.—*Exchange*.

—At the annual meeting of the stockholders of the Illinois Central R. R. Co., held at Chicago on the 25th ult., Wilson G. Hunt, Thomas E. Walker, and Jonathan Sturgis were re-elected directors for terms of three years.

Chesapeake and Ohio Canal.

At a meeting of the stockholders of this company at Annapolis, Md., on the 6th inst., the following gentlemen who had been previously nominated by the Board of Public Works, were elected directors for the ensuing year: James C. Clarke, of Baltimore County, President; George S. Brown, of Baltimore city; Gilmor Meredith, of Baltimore city; Jas. G. Berrett, of Washington, D. C.; Isaac Young, of Montgomery county; Wm. S. McPherson, of Frederick county, and William Dodge, of Washington county.

Mr. Merryman offered the following resolution, which was unanimously adopted:

Resolved, That the salary of the President for the year ensuing be fixed at ten thousand dollars, and that a contract be entered into between the Board of Directors of the Canal Company and the Hon. James C. Clarke, the President, by which he shall devote his time exclusively to the interests of the Canal as President and Superintendent.

Governor Bowie said that it was proposed to dispense with the Paymaster, Engineer, and a number of other superfluous officers, whose united salaries greatly exceeded the increased salary of the President.

On motion, the *per diem* of the Directors was abolished, and it was ordered that hereafter the pay of the Directors be limited to their actual expenses incurred in attending to their official duties.

It is understood that Mr. Clarke will reside at Hagerstown, and devote his whole time to the duties of the office.—*Am R R Jour.*

The Air Line Railroad.

The interest manifested in the construction of this road by other counties should keep our people on the alert. The town of Wallhalla has subscribed \$50,000 to the capital stock of the Air Line Railroad, and the voters of that town will be called upon to decide the proposition on the 25th inst. The city of Greenville proposes to subscribe \$50,000 and the county of Greenville \$200,000, and this will also be submitted to the people on the 25th of June. Spartanburg has taken similar action, and the question will be submitted to the voters on the 23rd of June, whether or not that county will subscribe \$200,000, and the town of Spartanburg has already agreed, we believe, to make a subscription of \$50,000. It is needless to say that the action of these counties does not favor the probability of the road coming to Anderson, and unless our citizens go to work at once, the result is likely to prove disastrous to our interests. We do not pretend that the subscription will be made in all of these counties, as the vote in York county has been decided against the subscription of \$200,000. But we state the facts, and leave our readers to judge as to the necessity of moving promptly.—*Anderson Intelligencer*.

THE RAILROAD.—Hon. Jesse Applegate, at the head of a railroad surveying party, has been in this and Josephine county all week, surveying the California and Oregon Central Railroad. At the last accounts he had passed Grave Creek, going north on the main stage road. He is of the opinion that in the vicinity of the main stage road is the best route he has yet seen. By the Salt Springs, near the place where Gen. Lane fought the Indians in 1853, is 1,000 feet lower and a better route than up Trail Creek.—*Oregon Sentinel*.

NATIONAL RAILWAY COMPANY.—The progress of the National Railway has been checked by an unexpected obstacle. It was reported a few days ago that the survey had been made from Yardleyville, where the road is to cross the Delaware river, to Bound Brook, where it will connect with the New Jersey Central Railroad. It is also reported that the right of way had been purchased in Pennsylvania, and that the company would in a few days commence negotiations in New Jersey. But in this operation it has been found that their course is likely to be not so easy as had been anticipated. The road is to be constructed from Yardleyville to Bound Brook upon two charters—that of the Trenton and Millstone Railway Company, which gives them authority to build to Millstone, and that of the Hamilton Land Improvement Company, which authorizes the construction of a road seven miles long at any place in the State. But this charter does not give the company power to condemn lands for right of way, and somebody opposed to this has taken advantage of this omission. When the agents of the National Company came to look over the route they found that a string of farms stretching part way across Somerset and Middlesex counties had changed hands. Somebody had purchased them who evidently had plenty of cash and did not choose to beat down the farmers' prices, nor to occupy the farms when purchased.

UNITED RAILROAD COMPANIES OF NEW JERSEY.—The President of the United Railroad and Canal Companies of New Jersey, Mr. Ashbel Welsh, in his address to the stockholders, states that the stock of all the companies now amounts to \$20,000,000. Their investments have an estimated value of \$35,000,000. Their debt is \$15,000,000. The property of the auxiliary companies controlled by the United Companies is worth over \$7,000,000. The receipts of the companies are over \$10,000,000 for the last year; the number of employees is 5,000. The stock of the companies, Mr. Welsh says, is held by 3,000 persons, and no one person owns three per cent. of the whole, and not more than one or two owned two per cent. Mr. Welsh alludes to the fact that the stock is so subdivided, and to the existence of large Boards of Directors, among the best features of the companies, for protection was afforded to the public and to the stockholders. In conclusion, he alludes to the extensive improvements made by the companies, and states that they are now substituting altogether steel rails for iron. Thirty miles of steel rails have been laid, and all the roads will be furnished with the improved tracks.

NATIONAL RAILROAD.—The Philadelphia Press states that surveying parties are busily engaged in laying off the route from Philadelphia to New York. The company will commence by constructing from Trenton, through Mercer and Somerset Counties, to meet the New Jersey Central road at Bound Brook, on the Raritan, 31 miles from Trenton. *Pro rata* arrangements have been made with the N. J. Railroad Company from Bound Brook to New York until a new and more direct line can be built. It needs, therefore, only 31 miles of a new road to connect New York and Trenton, and this being accomplished, the line will be extended to Philadelphia. This new road proposes a two hours' trip over steel rails, and with few stoppages.

POTOMAC RAILROAD.—This company was chartered by the Legislature of Virginia to build a railroad from Alexandria to Fredericksburg, connecting there with the lines to Richmond and other points south. At a meeting of the stockholders of this company in Baltimore on the 18th ult., the following named gentlemen were elected directors for the ensuing year: Isaac Hinkley, Henry D. Cooke, Jacob Tome, Wm S. Huntington, John L. Mayre, Jr., John Bull, Hallet Kilbourn, Wm. W. Dungan, George P. Fisher, Geo. A. Parker, Saml M. Felton, P. V. Daniel Jr., Enoch Pratt. At a subsequent meeting of the directors, the following officers were chosen, viz: For President, Henry D. Cooke; Vice President, Isaac Hinkley; Secretary, John Bull; Treasurer, Wm S Huntington. This organization secures, it is alleged, the immediate commencement and early completion of a road that must be regarded as one of the most important unbuild links in the country.—*Am. R. R. Jour.*

ALEXANDRIA AND FREDERICKSBURG RAILROAD.—A letter to the Baltimore *Sun* dated Richmond, June 4, says: The Alexandria and Fredericksburg Railroad Company achieved a signal triumph yesterday over the Potomac Railroad Company. Its bill continuing its charter, &c, which had already passed the Senate, was passed almost unanimously by the House. The Alexandria and Fredericksburg Railroad Company was chartered by the Alexandria Legislature during the war, but after some progress in the work, suspended operations. In 1867 the Legislature chartered the Potomac Railroad Company to take the place of the Alexandria and Fredericksburg and build the road. By the bill just passed the Alexandria and Fredericksburg Railroad Company is restored to its rights, and the State's claim to a forfeiture of charter is waived. It is said that the road will now be built.

THE MOUNT CENIS TUNNEL—During the past year an advance of 1,431.45 metres has been made; of this, 827.70 metres were driven on the Italian side, at Bardonneche, and 603.76 metres on the French, at Modane. The total length finished on the 31st of December, 1869, was:

	Metres.
South side (Bardonneche).....	5,555.20
North side (Modane).....	3,569.75
Total.....	9,224.95

The average monthly progress during the past year was 119.28 metres—or 68.97 metres on the Italian side and 50.31 metres on the French; and, at this rate of progress, the time necessary to complete the tunnel would be less than 13 months, or about the end of January, 1871, and for opening the railway, about six months later.

AMERICAN HORSE RAILROADS IN LONDON—Two lines have been built and opened, one 2½ miles long. It cost £4,000 per mile, and yet it proposes to carry passengers for two pence (four cents) each, with a special half-price rate, morning and evening, for workmen going to and from their labors. The opening of this "street tramway," as the English call it, created a great deal of excitement, and the streets were crowded with curious spectators on the passage of the first cars. Each car seats 22 inside and 24 outside, or 46 in all; yet they are described as light and elegant in structure, and being moved with great ease by two horses.

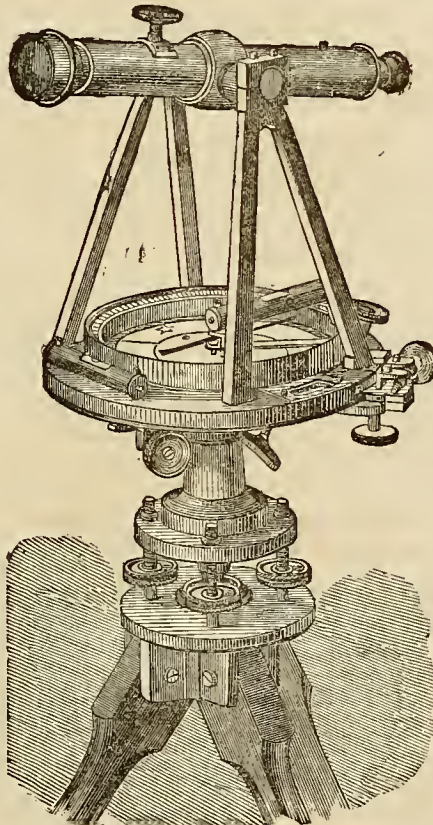
MASSIVE IRON.—Old cannon used to be burst or wedged to pieces with such difficulty that they have a very low money value. At Buffalo they cut them in two with a jet or cascade of molten pig metal.

During 100 years France and England have each granted about 80,000 patents; but within the last forty years the United States alone has granted more than 100,000.

—The first train on the Port Royal road in Georgia commenced running on the 26th ult., between Jawassee and Elsonville.

NEW YORK AND NEW HAVEN RAILROAD.—This road is earning about \$50,000 per mile per annum.

T. F. RANDOLPH,



MANUFACTURER OF
MATHEMATICAL INSTRUMENTS

THEODOLITES, TRANSITS, LEVELS,
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Wilmington, Delaware

GRAND SCENERY!

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59 Miles in Distance Saved
Baltimore & Ohio R.R.

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BALTIMORE,

PHILADELPHIA,

NEW YORK, and
BOSTON,

WITH THE PRIVILEGE OF GOING TO

WASHINGTON

FREE!

NO CHANGE OF CARS

From Cincinnati or Columbus to Baltimore and but ONE CHANGE
Philadelphia and New York.

Ask for TICKETS and BAGGAGE CHECKS via Baltimore & Ohio R.R.

J. I. WILSON, Master of Transportation.
L. M. COLE, General Ticket Agent.
G. B. GIBSON, General Western Passenger Agent.

JANUARY 1st, 1870.

Cincinnati to St. Louis Without
Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph
Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois
Central Railroad.

TRAINS RUN AS FOLLOWS:

St. Louis, Evansville and Cairo	
Mail.....	7:15 A. M. 10:55 P. M.
Osceola Accommodation.....	3:10 P. M. 8:45 A. M.
Through Western Express.....	5:10 P. M. 8:30 P. M.
Night Express.....	10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.
C. E. FOLLET, Gen'l Ticket Ag't, St. Louis, Mo.

CHANGEABLE GAUGE CAR TRUCKS

As in use on the National Despatch Line of Cars, adapted to two or more gauges. For information apply to

The Lobdell Car Wheel, Tire & Machine Co.

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2-12-9, 52

THE LOBDELL
CAR-WHEEL, TIRE & MACHINE

COMPANY,

WILMINGTON, DEL.

Established in 1836

All kinds of Railroad Machinery

GEORGE G. LOBDELL, President
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ERIE RAILWAY.

1400 MILES under One Management. 860 MILES without Change of Coaches.

BROAD GAUGE, DOUBLE TRACK ROUTE FOR—

NEW YORK, BOSTON,

Providence, Albany,

PITTSBURG, HARRISBURG
Philadelphia, Baltimore,

And Principal Points in

NEW YORK, NEW ENGLAND

—AND—

Pennsylvania.

This Railway extends from

CINCINNATI to NEW YORK, - 860 Miles.

CLEVELAND to NEW YORK, - 625 Miles.

DUNKIRK to NEW YORK, - 460 Miles.

BUFFALO to NEW YORK, - 423 Miles.

ROCHESTER to NEW YORK, - 385 Miles

AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS.

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Tusquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS.

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without change.

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY.

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUCK, Gen'l Pass'r Ag't
WM. R. BARR, General Southern Agent.

Best Route to St. Louis and Chicago

INDIANAPOLIS, CINCINNATI —AND— LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS, CAIRO, CHICAGO,

Memphis, New Orleans, Springfield, Quincy Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West, North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.20 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

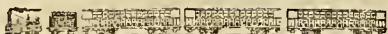
	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Port Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:40 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:40 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:30 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
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Omnibuses call for passengers.

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Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,
No. 27 West Third Street, Cincinnati.
W. P. SHINN, General Freight Agent,
Pittsburg, Pa.

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7:35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Sup't Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Esopus with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tockhannock &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Lids, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:00 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Care to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent
H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }

W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JUNE 23, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
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" " six months.....	15 00
" " per annum.....	25 00
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" " per month.....	40 00
" " six months.....	135 00
" " per annum.....	240 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'r's.

Cincinnati Southern Railway.

Pennsylvania Railroad—Its Influence in the Kentucky Legislature.

[From the Highland News.]

COLUMBUS & MAYSVILLE RAILROAD

A correspondent in another column wants to know what has become of the C. & M. R. R. project, and intimates that Hillsboro has not acted in good faith toward the enterprise. The facts, however do not warrant such a conclusion.

It was well understood at the time the survey for the road was commenced, that the main reliance of its friends for its completion was based upon the implied promise of the Pennsylvania Central to lay the iron and furnish the rolling stock if the people along the line would construct the road bed. Mr. Jewett, the representative of that road in Ohio, wrote letters, which were published, stating that the Pennsylvania Central wanted a railroad connection through Southern Ohio with the Kentucky system of railroads, via Maysville & Lexington, and that that Company would aid in the construction of any line which would give it the desired connection, by the best and most practicable route.

On the strength of these assurances, our citizens, and the people all along the line of the C. & M. road, subscribed funds for the preliminary survey, and pushed it forward to completion last winter. After the Engineer had made his report, showing a cheap and favorable line, Mr. Jewett, at a meeting in Cincinnati, promised some of our citizens that the Pennsylvania Central would send an

engineer over the route to examine it, and report to that Company on its merits. For some reason this promise has never been redeemed, and all efforts of the friends of the road to obtain an explanation from Mr. Jewett or the officers of the Pennsylvania Central have completely failed. It is conjectured, however, that the reason for this apparent change of policy on the part of that Company, is to be found in its lease of the Little Miami Railroad for 99 years, which was effected soon after Mr. Jewett's promise that an engineer should be sent over the C. & M. line to examine it. After having shortened its line through Ohio to Cincinnati, by the purchase of the Wilmington & Zanesville road and the lease of the Little Miami, the Pennsylvania Central seems suddenly to have lost all its professed desire for a north and south line to Maysville, and has left our Columbus & Maysville line "out in the cold." This is the best answer we can give to our correspondent's enquiry as to what has become of that enterprise.

Last month, by an act of the Legislature passed in 1868 (of which none of our people seem to have been aware), the control of the unfinished railroad line east of Hillsboro to Jackson and the Ohio river, unexpectedly passed out of the hands of the M. & C. R. R. Co. and the Baltimore & Ohio R. R. Co., and the rights of way, materials and all work done, were forfeited to the land owners on the line. Seeing a good prospect of completing this line by the organization of a new company, and no immediate prospect of completing the Maysville and Columbus line, our citizens have very naturally and properly turned their attention to the former enterprise, and in doing so, we do not think they can be justly accused of "bad faith" towards the other line. Besides, there is a great advantage in favor of the Eastern line, in the amount of work already done, estimated at half a million of dollars, and the superior connections it would give us, with the coal and iron region, and the Chesapeake & Ohio Railroad.

The amount of money to be raised in this county to complete the line to Jackson (beyond which point it is expected the line will be built by Gallia, Jackson and Meigs counties), is estimated at not over \$100,000; while the share of this county for the Columbus and Maysville road would be at least \$300,000. This is another very good reason for concentrating our present efforts upon the Eastern line.

The above puts us in mind of an Oriental story of an old hermit, famed for his piety, and the wonderful cures effected in response to his prayers. Upon a certain occasion, a beautiful princess, afflicted with a sore disease, was taken to him for the benefit of his intercessions. It being late in the day, he requested that she be left all night, and he would struggle in prayer for her restoration. His character being so pure, the high officials did not hesitate to comply with his request. But horrid to tell, instead of engaging in his devotions, the tempter had got control of his mind, and he was induced to satiate his lust on the person of his charge. To hide this crime, the tempter suggested "murder" as the only possible means. The result—his arrest, trial, conviction and condemnation. Having lost his power for good, the tempter

had control of the now miserable culprit, and upon the gallows told him if he would fall down and worship him that he should be immediately transported to another country, where he would be more venerated than ever he was before. The wretch complied, and the devil spat in his face and left him to his fate.

The above history of the Columbus and Maysville enterprise is another link in the chain of the "history of the defeat in the Kentucky Legislature of the Cincinnati Southern Railway," and the promises enumerated above indicate the real origin, as well as the motives that instigated the amendments to the bill proposed by the member from Maysville, and his vote against the measure when the amendments had been all adopted, with the exception of "but they, each and all, shall be charged in the same proportion according to distance." This clause was intended to force the trustees, or their lessees, to carry freight over their line a portion of the distance at the same rates that they would charge for a "long haul" over their entire line. Or, in other words, it would have enabled Maysville, by the completion of the Maysville and Lexington Railroad (for which they had the same kind of promises as above enumerated), and the construction of the Columbus and Maysville Railroad to be on the "short line" between Chattanooga and Columbus, which at that time was the extreme caudal end of the Pennsylvania road. The failure to get this connection on the terms, and as they desired, forced the completion of the contract with the Little Miami, and it was added as an appendage to the caudal extremity, while poor Maysville has just discovered her mistake, and is now in the condition of the hermit.

Chesapeake and Cincinnati Railroad Survey.

The committee appointed by a meeting of the friends of the Chesapeake and Cincinnati Railroad, in March last, to solicit subscriptions for a survey, are now, we learn, pushing their lists with some energy. The amount proposed to be raised is not large, and it should at once be placed in the committee's hands Hon. Benjamin Eggleston and Mr. Joseph Kinsey will be glad to receive contributions. As the undertaking is a very important one, capitalists and business men should not wait to be called on.—*Commercial*.

Common sense is usually esteemed a good thing, and not liable to the same objection that is urged against the "measles" on account of the danger attendant upon "striking in." There seems, however, no danger of such a calamity to the projectors and committees of proposed lines of railroads leading to or from Cincinnati. If our citizens are really in earnest about building a railroad through Ohio to connect the city with the Chesapeake and Ohio Railroad, why don't

they organize, under the law, and comply with its terms, and then survey and adopt the best route, all things considered, to destination. Why send out any bergering committee, or have one or two prominent citizens sitting like "blind Bartimeus," without his faith or chances of success.

The organization of a great company should be for a worthy object, and pushed with a vigor, energy and determination as if struggling for a prize, and not as if "soliciting alms" for an *effete* object of charity.

Cincinnati Southern Railway.

ANOTHER CHANCE "TO HEAP COALS OF FIRE ON THEIR HEADS."

EMINENCE, KY, June 17, 1870.

Hon. Mayor of Cincinnati:

DEAR SIR: I read that part of your recent message suggesting that Cincinnati ought to avail herself of other probable opportunities of making an independent railroad connection South, beside her Cincinnati and Chattanooga scheme on the plan of the Ferguson bill, as this might be greatly delayed, and possibly fail at last. You suggest that the problem of a Southern connection might be solved more readily and economically by means of the Cumberland and Ohio Railroad enterprise. Just such a policy as you very wisely and sagaciously suggest, I last summer and fall urged upon some of your leading and active men in this movement. It seemed impracticable to induce them to concur in the suggestion: and only your allusions revive the hope that these persons may yet be led to see that yours is the surest and speediest way to give Cincinnati an independent line of railroad South, and to enter into a co-operation that will not impair the chances of the Ferguson-bill plan, while it will surely spoil the strategy which has for years been blocking the pathway of your city to the South.

I send you a copy of the report and map put out in the earliest stages of our movement. We offer you the shortest practicable route to Nashville, and we have in *Kentucky*, from the Kentucky river to the Tennessee line, \$2,600,000 of subscriptions, which will be increased to \$3,000,000 in Kentucky; and to this \$700,000 can be added in Tennessee. If you will give us \$1,000,000 on this line we will, with our credit and bonds in addition, complete for you a direct through unbroken line to Nashville. From Campbellsburg, Ky., to Tennessee line, on the Chattanooga stem, 60 miles, we have \$630,000 more subscribed, to which the counties in Tennessee to Chattanooga will add \$1,003,000 more. Mr. D. D. Stanton, of Buxton, President of the Alabama and Chattanooga road, still assures me has \$2,000,000 subscribed for the purpose, and is ready to undertake to build the road from Chattanooga north to the Kentucky line, if we, or any company, will guarantee to meet him at a point on the Kentucky and Tennessee line. In my judgment \$1,000,000 more of subscriptions from your city would secure you a road, direct and unbroken, to Chattanooga, and on as short a line as you can possibly build. Possibly, with Mr. Stanton's aid and co-operation, it would not require over \$500,000 additional to secure the Chattanooga extension. Is not such a programme worth your consideration? I believe it practicable to carry it out to full

completion, and to go to work on the whole in six months.

I will send you the report of our last meeting of the C. & O. R. R. Co., and action.

A committee of our friends will visit your city next week, to consult with your leading and authoritative men, and to inaugurate a move for subscriptions to our Nashville road, and for the road toward Chattanooga also.

I have much more to say on this subject, which must be omitted until I can visit your city and see you in person. In the mean time I am, very respectfully, yours, &c.

Z. F. SMITH.
P. S.—I refer you to R. M. Bishop, Esq., Mr. Ferguson and Mr. Joseph C. Butler, with whom I am personally acquainted.
Yours, &c., Z. F. S.

Report on Transportation and Discrimination in Rates and Freight.

The following report was signed yesterday and will be presented to-day:

"CINCINNATI, June 7, 1870.

"P. P. Lane, Esq., President Board of Trade:

"DEAR SIR—The attention of our Transportation Committee was lately directed to the discrimination against our city in rates of freight to Bellefontaine, one of our shippers stating them as

	1st class.	2nd class.	3rd class.
From Cleveland (140 miles)	30	25	15
From Cincinnati (117 miles)	48	38	32½

"On inquiry we found it to be

	1st class.	2nd class.	3rd class.
From Cleveland (140 miles)	30	25	15
From Cincinnati (117 miles)	17	29	25

"Not as bad as stated, but had enough.

"We at once proceeded to find out the cause of this injustice:

"In reply to a letter addressed E. F. Fuller, General Freight Agent Little Miami Railroad, we received answer:

"The reason rates from Cincinnati to Bellefontaine are higher than from Cleveland is that we are compelled to pay very high local rate from Springfield, whereas the line from Cleveland is single to Bellefontaine."

"We also addressed a letter to L. Devinney, General Freight Agent Cincinnati, Hamilton and Dayton Railroad, on the same subject.

"Mr. Devinney very kindly forwarded our letter to J. C. Buxton, General Freight Agent of their connecting line, the Cincinnati, Sandusky and Cleveland Railroad, for reply, which came as follows:

"While Bellefontaine is a local point on the Cincinnati, Columbus and Cleveland Railroad, it can hardly be expected they will permit the roads from Cincinnati to make same rates. If it was done, the result would be a reduction of their rates to preserve the business to them because it is a local station. I don't see as it can be avoided."

"This is certainly surrendering the business to another road without any attempt to retain it, and would seem a concession that the road, Mr. Buxton represents is not imbued with the spirit of the age, or at all events is not determined to fight it out on their line if it takes all summer.

"We also addressed a letter to Mr. Buxton ourselves, calling his attention to their unfair rate, and received the following reply:

"Sandusky, June 8, 1870.

"A Macneale Esq., Chairman Committee on Transportation, Cincinnati Board of Trade:

"DEAR SIR—Your favor of June 7 has been received. The rates of freight from

Cleveland to Bellefontaine are less than from Cincinnati, because Bellefontaine is a local point on the Cleveland road, and the earnings all go to one road, while from Cincinnati the business passes over two roads, and the earnings are divided, and at the same rates made from Cleveland would not pay the two companies. Rates are made by the Cincinnati, Hamilton and Dayton road that are less than the local rates, but not as low as the rates from Cleveland. I do not see any remedy, unless the roads leading out of Cincinnati make a very low rate and add to a rate over this road.

"It will not pay us to *pro rate* on rates as low as from Cleveland. Yours respectfully,
"J. C. BUXTON."

"We then conferred with Mr. Devinney, and on his agreeing to *pro rate*, or in other words, to receive an amount of money paid for freight in proportion to the distance carried on each road, and to make the entire rate as low as any rate that might be made for Cleveland to Bellefontaine, we addressed the following letter to Mr. Buxton;

"Cincinnati, June 10, 1870.

"J. C. Buxton, Esq., General Freight Agent Cincinnati, Sandusky and Cleveland Railroad, Sandusky, Ohio:

"DEAR SIR—L. Devinney, Esq., General Freight Agent Cincinnati, Hamilton and Dayton Railroad, authorizes me to inform you he will *pro rate* you on freight from Cincinnati to Bellefontaine at the same price that is, or may maybe, established from Cleveland to Bellefontaine. Will you please inform me whether you accept or not, and oblige, Yours truly,

N. MACNEALE,

"Chairman Transportation Committee."

"In due course of mail we received the following reply from Mr. Buxton:

SANDUSKY, OHIO, June 16, 1870.

"N. Macneale, Esq., Cincinnati, Ohio:

"DEAR SIR—Your favor of the 10th has been received and contents carefully noted. As I wrote you under date of 8th a *pro rata* from Cincinnati to Bellefontaine on the same rates made from Cleveland to Bellefontaine, would not pay the company for the work done. It is unjust to ask this company, with its small local business, to accept the same rate per mile as the lines out of Cincinnati with their large local business and with their regular rates so much less than ours. The *pro rata* from Cincinnati to Bellefontaine on the same rates as from Cleveland, would give the Cincinnati Hamilton and Dayton road nearly or quite their usual rates from Cincinnati to Dayton, while we would perhaps receive only one-third or one-half of the usual rates, Dayton to Bellefontaine. If the Cincinnati, Hamilton and Dayton Company would offer us sixty-five per cent. of the through rate it would look much more reasonable. We can not accept a *pro rate*.

"Yours truly, C. H. BUXTON,
General Freight Agent."

"As we could not see the propriety of Mr. Buxton's position we wrote him in reply:

CINCINNATI, June 18th, 1870.

"J. C. Buxton, Esq., General Freight Agent Cincinnati, Sandusky and Cleveland Railroad, Sandusky, Ohio:

"DEAR SIR—Yours of the 16th instant received. We can not see that it is unjust to ask you to carry freight at the same rate the Cincinnati, Hamilton and Dayton Railroad does; on the contrary we think it unjust you should ask sixty-five cents for carrying freight a less distance than the Cincinnati, Hamilton and

Dayton road will carry the same for thirty-five cents.

"The fact that you charge an extremely high local rate of freights is no reason that the Cincinnati, Hamilton and Dayton road should make a ruinous deduction on what has always been a fair and reasonable rate.

"We have heretofore held the position that there are few actual discriminations in rates of freight against Cincinnati, and have taken pains to try and clear your road of the imputations brought against it. We regret our failure, and must merely place the facts before our shippers and let them regulate their shipments accordingly.

"We wish you would reconsider your determination relative to *pro rate*

Yours truly, N MACNEALE

"Chairman Committee on Transportation"

"In the investigation of this matter we think we have brought out the points that influence most of the cases that are considered discriminations against Cincinnati, and the burden of the matter now rests on Mr. Baxton, as the representative of the Cincinnati, Sandusky and Cleveland Railroad. Should he adhere to his position and rates, we think the less freight his road gets from Cincinnati the better. Personal attention to shipments will enable our citizens to throw much of their freight off this road until a new policy actuates its officers.

"The conduct of Mr. Devinney confirms our previous statements, that the officers of our own roads have the interest of our city at heart, and the great disadvantage we labor under is that we do not control long lines of road.

"This is the first case in which we have received evidence from any of our shippers sufficient to enable us to trace up a positive instance of discrimination against Cincinnati. We have asked in the public prints for evidence regarding the alleged actions of the Louisville and Nashville road, and have only received information of one instance that would justify examination.

"This is not sufficient to authorize our committee in availing itself of the hospitality of the Mail Line of steamers and Short-line Railroad, so kindly tendered us for our expedition to Louisville and beyond, in order to investigate the matter. When we receive the evidence required, a report will soon follow.

"In conclusion we would recommend our shippers to unite and establish an office where they could apply for all rates they require on freight; and keep employed a suitable staff of officers, in their own pay, to effect contracts for them and investigate all unfair rates charged by connecting roads. The duties are too onerous to be altogether transacted by efforts of voluntary committees, but we shall hold ourselves prepared to co-operate to the fullest extent with a bureau organized as suggested.

"As soon as our shippers furnish us with proper evidence to present to the Louisville and Nashville Railroad Company, we will investigate the complaints made against them as fully as we have the Cincinnati, Sandusky and Cleveland Railroad case.

"We hope the evidence required will be furnished this week, as all our arrangements are made to attend to the matter forthwith.

"N. MACNEALE,

"M. LOTH,

"C. OLBABER,

"JAMES J. HOOKER,

"JOSEPH HARGRAVE.

"Committee on Transportation."

Southern Pacific Railways.

We republish the following editorial from the New York Tribune, because it covers the whole ground, and fully explains the rivalries between the South-western cities and roads, looking towards the interior and across to the California coast countries:

"The proposition of a railway on the thirty-second parallel of latitude has been before the public in various shapes for twenty years, and yet the enterprise is still struggling desperately for existence. Then Texas was the only State of all the Gulf region to whose prosperity the completion of the road is of almost vital importance, which gave it the least encouragement. Louisiana was cold because New Orleans was passed by, and Arkansas offended because Memphis was aimed at. But so earnest was Texas in its wish to see the line built, that its several Legislatures under rebel and loyal rule affirmed and re-affirmed the grant of lands made to the road in 1836. California, on the Pacific coast, desirous of making the port of San Diego the Western terminus of the line, chartered and aided the partial construction of another line. The Texas route is the Memphis and El Paso line; the California route is usually called the San Diego and Fort Yumas road. Of the former more than fifty miles are graded, and twenty-three miles laid with rails. Of the latter we know only that work is in progress. Without doubt the two lines have more of finished work, larger land grants, and better prospects of being eventually completed than any other Southern Pacific railway. These two roads are under the control of Gen. John C. Fremont, and he has asked Congress to consolidate, charter and aid them under the title of the "Southern Transcontinental Railway."

"The Senate Committee on the Pacific Railways has not only reported adversely to this consolidation, but has proposed to authorize an entirely new line, to be called the Texas Pacific Railroad, with branches and connections; and the bill makes large land grants. But the new line has certain gravely objectionable features to which we wish to direct the special attention of the Gulf States delegations in Congress. Texas, in the first place, can give no aid to the new road, because her land grants are vested in the old line. The Senate Committee claims otherwise, we are aware, but these grants have been repeatedly declared valid by the Texas Legislature, before, during and since the war. The burden of proof conclusively shows that the right to make grants to other roads over the same route has not reverted, as the Committee claim, to the State of Texas. At any rate, such right, if claimed, will be contested, and the first step of any new company which Congress may charter will carry it deep into litigation, and cripple and retard both enterprises for years.

"Further, the proposed line is not such a one as the South needs. Its eastern terminus will be New Orleans on the Gulf, instead of some Southern port on the Atlantic. It is not to be uniform in gauge with the roads of the Southern system, which, without exception, are five feet wide, while the Texas Pacific road gauge is fixed by the bill at 4 feet 8½ inches. The evident design of all this is to build up New Orleans by compelling the "breaking of freight in bulk" at that terminus, and will please none but the Senators from Louisiana and Arkansas. The Memphis and El Paso road, on the other hand, connects

at the former city with the Southern system, and has unbroken and direct communication with the Atlantic coast through the heart of the Southern States. These facts should teach Congress the need of changing the grade of the Texas Pacific road, or of defeating the bill altogether. Other facts which we have cited in this and previous articles urge, with equal force, the economy and importance of encouraging the partly finished 'Southern Transcontinental road.'

Fast.

It is understood that one of the questions at issue between the trunk lines to the East, on trial during the present contest, is the time in which the trip between New York and Chicago shall be made. The Pennsylvania has a line by one route 49 miles and by another 61 miles shorter than those of its competitors. It claims that this advantage in distance gives it the right to make the trip in two hours less time. But the Pennsylvania route has many heavy grades, and the other lines claim that their advantage in grades counterbalance its advantages in distance, and that the trip should be made by all the lines in the same time. We do not know that this is the chief question at issue, but it is one of them, and it is probable that the result of this contest will settle it. At least there seems a disposition on the part of managers to make the very best time possible on their respective lines.

The initiative in putting on the thirty-hour train and in reducing rates was taken by the Vanderbilt roads, we believe. It may be regarded as a challenge to the Pennsylvania. "We can do this: can you do better?" was the interpretation. It is very quick time and requires good roads, equipment, and the best management. But all the roads had maintained it for some months last fall, without accident and with reasonable certainty.

The Pennsylvania this week gave its answer to the challenge. It is twenty-seven hours to New York. Fare reduced to eighteen dollars (just two-thirds of a dollar an hour). That is, as one of Mr. Bret Hart's heroes would put it, "We see you and go you three better." Certainly there is no dodging of the question here. If the Pennsylvania can make the trip in twenty-seven hours as easily as the other routes in thirty, it will have demonstrated its advantage in distance. This will not be demonstrated, however, unless the other lines try the same time and fail to make it, or if the Pennsylvania should fail to maintain it.

This time of itself is sufficiently remarkable to deserve attention. The line by which it is made is not the shortest one, *via* Allentown, but *via* Philadelphia. This route is 911 miles long. Thus the average speed of this train, including stoppages, is 33½ miles per hour, which exceeds anything made in America heretofore on so long a line. The northern routes, to make the same time, must run at the rate of 35½ miles an hour.

This time is possible only on roads in excellent condition, with rolling stock of the best quality, and under the most skillful management. We think that all the trunk lines have already demonstrated that they possess these advantages. No very long trial of these excessive rates of speed will be necessary, it would seem, to show quite plainly just how far and where one line has the advantage of another for time. The contest is costly, like all contests; we have no idea that there is any public demand for such fast time; but it

is one of the weapons of war. If there must be a contest—and there is no question of that, for it exists—it is better for all parties that it be sharp, quick and decisive. The Pennsylvania managers are confident that they can maintain their present rate regularly, and even make up an hour or two, if necessary. If other lines can do as well, they must shorten their time again or lose their point. We do not imagine that many more shortenings will be made by any party, for if the limit is not already reached it can not be far off. When it is over, doubtless, the time will be established at something like the rate of last summer, which will meet all popular demands and leave a little margin between earnings and expenses for the companies. At present, we presume, the greater the travel the less the profit. Those who wish to go to New York in a day and an eighth, and for a very little money, will do well to go soon, before this contest is ended.

Since writing the above, we learn that the Michigan Central and the Lake Shore roads, in connection with the New York Central, have made arrangements to run their fast train to New York in twenty-seven hours. As we have said above, this requires an average speed of thirty-five and one-half miles an hour, and counting the delays in crossing streams on one line, it will be at the rate of thirty-seven miles an hour—a rate which would hardly have been thought possible a few years ago, and, indeed would not have been possible, in the condition of the roads at that time. But our trunk lines have gradually been improved until they approach in perfection the costly English lines. Road-bed and superstructure have been made as safe as possible; inspections are frequent and repairs immediate and thorough. Accidents on these lines are very rare, notwithstanding the increase in business and the number of trains and the consequent complication. There are double tracks on the eastern halves on the lines, and the western halves have many sections of second track where there is most passing of trains. The system of running trains by telegraph has been perfected, and there is everywhere more certainty and fewer opportunities for mistakes in the movements of trains. So what was not possible a few years ago may well be possible now. Still, this rate of speed is so much more rapid than any heretofore in use that its practicability can only be tested by experiment. Of course no one imagines that such a rate can be made with profit. It is not likely that there will be any increase of business on account of the fast time, while it can not fail to increase materially the expenses of the line, especially in repairs of road and rolling stock. But the question of profit does not enter into this contest. It matters little whether the fast train has any passengers or not. Of course, since the train must be run, it is well that something should be got for it, but its success will be estimated by its regularity, promptness and safety, and not by the number of passengers it carries, or the money it returns to the companies. The reduction of rates has less reason in it. All the companies have pretty good credit and pretty strong backing, and it is hardly possible that one company will deliberately plan to do the business at a loss until the other's means are exhausted. It would seem that it is enough to add greatly to the expenses without diminishing the receipts of the roads. Probably this blow is aimed at the Erie particularly, but it can be hurt more by reductions on freight than on passenger business. It was reported at one time that rates would be reduced before the end of this week from \$18 to \$15, but no

such reduction has been made before we go to press. Curiously enough, the low rates have not created any very remarkable increase in traveling, and indeed, at one time it rather fell off, the expectation of still lower rates causing travelers to delay. They do not seem to remember that rates may go up as well as down, and that they are sure to be increased eventually, whereas they may never be any lower.—*Railroad Gazette*, June 18.

Railway Influence on Legislation.

The managers of the larger railway companies exercise a most pernicious influence upon local or State legislation. In fact they control legislation from the influence of their aggregated capital, and the free use of money and other potent influences possessed by men of their position. For many years the managers of the New York Central Railway exercised a controlling influence upon the legislation of that State, under the effect of which all other interests had to give way; and we see in other States the same power exerted with the most unscrupulous rigor. A prominent railway company in Massachusetts for several years kept a band of well trained paid lobbyists at a suit of rooms near the State House, and into these seductive headquarters, well furnished with the best of liquors, cigars and edibles, card tables, and other means of social influence, members of the Legislature and other influential persons were always welcomed by the paid agents of the company, well known professional lobbyists, men of brains and any quantity of assertion. When the company wished to carry a measure in its interest, or defeat one opposed to it, it found the influence of this arrangement potent. These agents reduced lobbying to a science, commencing even with the primary meetings of political parties, influencing the defeat or election of men either feared as opponents or desired as friends of any important measure. After the legislature is chosen, the lobby men are very active in canvassing for Speaker of the House or President of the Senate; they go for the man or men who will appoint the right men on the railway committee; and with their activity, perseverance, and thorough knowledge of men and things, they seldom make a mistake. In fact, the railway committee is often the creature—the actual creation—of the lobbyists and if by mistake some man of independence and judgment gets upon the committee, when an important measure is to be reported upon, and there is a question of the result, the lobbyist—who knows everybody—straightway writes to influential men in the member's district to come to the Capitol and help put the doubtful member in the right position. Members of the judiciary, doctors, lawyers, and even ministers of the gospel, are pressed into the service by these preserving lobbyists. The promise of a trip to Boston, with all expenses paid and a handsome fee besides, does the business for a great many men, who stand high in public respect, but whose weak points are known to the sharp, unscrupulous and plausible lobbyist. Men who are familiar with legislation know all these things, and it takes but a moderate amount of experience at the State House to recognize the power of railway corporations, backed by a well trained corps of lobbyists, upon legislation affecting its own interest. Some very funny results are produced by lobby influence at times. One at the present session of the Legislature is worth remembering.

One large railway corporation bought a branch line that had been operated but not owned by another large corporation. The buyer wanted to connect the track of the branch line with its main line. This the other objected to, and to prevent it, the full force of the lobby was procured, and actually the House of Representatives were persuaded not to allow the connection of the main line and its branch by building a short bit of track. This piece of legislative folly will be rectified hereafter, doubtless, but the fact is well worth remembering as a specimen of the power of the lobby directed by the managers of a powerful railway corporation. At another time we propose to speak plainly upon the influence brought to bear upon railway legislation.—*American Railway Times*.

Erie & Atlantic & Great Western Railway.

All that untiring energy, forethought, inventive genius, unprecedented liberality and enterprise, aided by the highest order of engineering and mechanical skill, can do to render a road safe, convenient, speedy, comfortable and everyway reliable, has been done on the Erie and Atlantic, and now, immeasurably in advance of all other routes, it is acknowledged by the concurrent testimony of the millions that have traveled over it, to be the most thoroughly equipped and most successfully managed line in the whole country.

A tolerably correct idea of the great favor with which this road is regarded by the traveling community, as well as of its importance and the vast amount of business it transacts, may be derived from the statistics presented by Mr. Gould, the President, and more especially by the enormous receipts of the consolidated roads. In 1868, these, for passengers and freight amounted to \$14,312,478; in 1869 to \$16,576,836—a gain in one year of \$2,263,348.

In these days of rapid travel over long distances, the public will be interested to know that, from the harmonious relations existing between the numerous railroads and steamers, consolidated under the designation given above, all of its connections are made certainly and with regularity, as advertised, another and more important advantage offered by this line is that baggage can be checked throughout its entire length, from Cincinnati or Louisville to New York, and this inexpressible relief from annoyance, loss and extortion, will be properly appreciated by travelers who have had to leave their seats at almost every station, on other roads, to have baggage re-checked, without having opportunity to enjoy the trip for this discomfort.

The luxurious accommodations on this line, in the way of spacious, elegantly furnished coaches, should entitle it to popular preference. The sleeping cars as well as the day coaches are large, well-lighted and admirably ventilated, rivaling in the beauty and magnificence of their adornments and appointments, the most sumptuous apartments in the first hotels of the land.

The agents and friends of competing lines have heretofore and now continue to wage an unscrupulous and bitter warfare on the Erie, resorting to misrepresentation and abuse, but despite this opposition, the Erie and Atlantic continues to grow in popular favor, and its managers determined to deserve the liberal patronage bestowed, employ their immense resources in procuring every improvement and facility that will benefit the public and serve to render traveling more agreeable.—*Farmers Home Journal*, June, 1870.

Railroad Earnings from Jan. 1 to June 1.

As the year progresses, the reports from our principal lines of railway show a favorable condition of traffic compared with the same period in 1869. It will be observed in the table of earnings for May, presented below, that most of the prominent roads show a decided increase in their earnings compared with the same month of last year. The month has, indeed, been quite propitious for a large railroad traffic. The higher price of breadstuffs has stimulated the movement of grain at the West; progress in railroad construction in most of the Western States increases the activity of business in those localities, and adds an important item to the freight traffic of the leading lines, while the passenger business is probably larger than in previous years, from the marked attention which has recently been given to dealings in railroad lands; from the large immigration, and from the great increase in travelers for pleasure.

A number of changes have taken place in the list of roads reporting their earnings within the past year. Several of the old favorites, as the Lake Shore and Michigan Southern and the Fort Wayne Companies, have disappeared, and in their place we find new roads, as the North Missouri, Pacific of Missouri, St. Louis and Iron Mountain, Kansas Pacific, &c., whose stocks are hardly known at the Exchange, but which are daily becoming of more importance as leading lines in the West.

A number of the reports here given are not published elsewhere, and have been obtained through the courtesy of officers of the respective companies, to whom we are indebted for being thus able to present the most complete list of railroad earnings which can be compiled under the prevailing system of secrecy in corporate management.

For the five months of the year which have now elapsed, the roads, as a general rule, show a fair increase of earnings compared with the same time in 1869, and for the future their prospects would seem to be very good, from the several causes remarked upon above. The condition of the country is prosperous; the crops are in excellent condition, and the various conditions upon which railroad business depends are apparently such as to decidedly favor the anticipation of earnings fully equal to those of the year 1869:

EARNINGS FROM JANUARY 1 TO JUNE 1

	1870.	1869.	Inc.	Dec.
Chicago & Al-				
ton.....	\$1,691,806	\$1,717,808	...	\$25,913
Chicago & N.				
Western.....	4,521,518	5,325,693	...	704,175
Chl & Rock				
Island.....	2,155,900	2,089,131	66,769	...
Cleveland, Col.				
Cin & Indi-				
anapolis....	1,170,476	1,113,979	56,497	...
Kansas Pac...	1,288,848	793,285	415,563	...
Illinois Cen...	3,355,176	3,011,052	344,124	...
Marquette & Cin	506,400	514,300	...	8,010
Michigan Cen.	1,865,802	1,906,742	...	40,880
Milwaukee &				
St. Paul.....	2,329,827	2,295,446	34,381	...
North Missouri	1,176,459	639,055	537,404	...
Ohio & Mis...	1,181,256	1,010,553	170,703	...
Pacific of Mis-				
souri.....	1,318,919	1,238,235	80,684	...
St. Louis Alton				
& Terre Haute	810,824	765,654	45,170	...
Tol. & Wabash				
& Western..	1,523,534	1,491,651	31,883	...
Total....	\$24,751,195	\$23,943,024	\$1,587,167	\$778,008

Carbon oil has been discovered in the town of Iola, in Waupaca county, Wis., and preparations are being made to sink wells.

Railroads, &c.

In railway construction alone the amount of private money employed, and the frequency of public loans to augment railroad transport, few have any conception of. Notwithstanding the bad odor that maladministration of the affairs of one or two railroad corporations in this country has brought them into, there is no difficulty in obtaining money in Europe for railroad enterprises, which shows that want of confidence in the permanence and progress of our institutions is not very potential across the Atlantic. It is estimated that for the next few years 5,000 miles of new railroad will be constructed, on an average, each year. One State alone is said to be now projecting 3,000 miles of new road, and the next three year's construction will equal the whole railroad mileage perfected in England and Ireland during forty years. In Canada, after a standstill of some years, railroad business has again been quickened, and 600 or 700 miles of new roads are under way. This is independent of the anticipated great North Pacific line, which will add some three thousand miles to the total, and bring the hitherto isolated regions of the Hudson's Bay Company into union with the Atlantic and Pacific coasts. In India the important line from Bombay across the Hindostan peninsula to Calcutta, has just been completed, and projects are ripening for tapping this grand trunk line by various others at different points. Russia has contracted enormous loans to this end during the past three years. By the first of January, 1872, no less than 3,459 versts of new railroad will be completed. Within the next four or five years 11,800 versts (8,000 miles) of railroad will be constructed, and 4,500 miles more will shortly be proceeded with. The desire for new railroads in Continental Europe is said to have assumed a mania, which will probably be followed by a tremendous crash; but most of the projects will be completed before reaction comes. Austria, Prussia, Bavaria, Hungary, Wurtemberg, and even Roumania, Turkey and Egypt have caught the fever and are preparing for a large increase of railroad construction; and in Japan 300 miles of railroad are soon to be built. Neither in England or France is there any sign of great undertakings in railroads. The former is pretty well gridironed already, and has not yet got over the shock of 1866, and that the latter's ambition does not appear to tend in that direction at present.

The building of so many lines, has, of course, materially affected the iron trade. It is said the Cleveland and Tyne districts alone, in England, have orders from Russia to the amount of £3,000,000, for railway materials of all kinds, and that the North-eastern district is producing railroad material at the rate of 1,200,000 tons a year, and increasing its furnaces.

In land and ocean telegraphs the activity is scarcely less, particularly in the latter. Nearly every mile of the world's surface that can be utilized has either been surveyed or is about to be to that end, and in a few years there will be neither ocean, sea nor strait that is not underlaid by the electric messenger. The Atlantic is crossed and re-crossed, the Arabian Sea is traversed, so are the Mediterranean and Red Sea, and so will shortly be the great Indian and Pacific oceans, thus bringing in *rapport* the four quarters of the globe, and placing the antipodes within about an hour's speaking distance. In its results upon the happiness and progress of the earth, the present decade bids fair to stand pre-emi-

nent. The benefits to mankind resulting from the vast railroad and telegraphic projects in hand and projected, can not be thoroughly estimated, but that they can be other than vastly beneficial to the whole world, none can doubt.—[Thompson's Reporter.

Cotton Manufactures in the South.

The convention which recently assembled in Charleston, South Carolina, in their report, set forth in a striking manner the various manufacturing advantages enjoyed by the Southern States. This document is not of that crude, sophomoric character, such as make up the bulk of journalistic essays upon Southern manufactures, but of that clear practical nature that must command respect and attention. The managers of prosperous factories leave their work for a time, to send forth to the outside world the story of their fortune. They invite competition from all quarters. The Eastern mill owner tells how his Southern factory has supported the one in New England, how sixteen frames in Georgia returned a profit of \$15,000, while twenty frames of the same machinery in the North barely paid expenses.

In the report is clearly explained the peculiar advantages of our climate for manufacturing cottons especially, the immense saving in the transportation of the raw material, amounting to almost one-eighth of the value of each bale, the cheapness of lands in the South, the abundance of fuel and lumber, and the large home consumption of goods.

Careful estimates are made of the comparative cost of manufacturing yarns in the South, in the North and in Europe; and the result proves that home-made yarns can not only compete with any others, but yield a profit in the New York market after all expenses and commissions are paid of five cents per lb. The Saluda Factory, of South Carolina, in April of last year, sent some of their No 24 yarns to Manchester, where they were sold for 16d, equal to 43c. in currency. The cost of these yarns was 39½c., so that the manufacturers' profit was 4½c. per lb, or 11 per cent. This is competing with English manufactures in their own market, which the New England Factories have never been able to do.

But the advantages of the South extend not only to the manufacture of yarn, but to cotton goods of every description, many classes of colored goods have been made at a cost, which will bear transportation North, and after being sold at the cost of Northern production yield a profit of 40c. per lb. With the requisite skilled labor, the South can convert fully one-third of her raw material into fabrics and sustain her factories against the competition of the world without a single protective duty. These considerations ought to attract the attention of capitalists, and they must do so sooner or later; and in the meantime it would be well for the advocates of a comprehensive self-sustaining national industry to encourage emigration to the Cotton States and foster the development of our resources.—N. O. Price Current.

The Special Commissioner of the Revenue says that the annual crop of tobacco in this country is 225,000,000 lbs., valued at \$37,125,000; of wool, 177,000,000 lbs., valued at \$75,225,000; of corn, 900,000,000 bushels, valued at \$450,000,000; of hay, 25,000,000 tons, valued at \$250,000,000; and of potatoes, 50,000,000 bushels, valued at \$90,000,000.

Material Progress of the South.

The cotton crop for the present cotton year will reach to over 3,000,000 bales of 400 lbs. each, which, at the average price of twenty-one cents the pound, will be worth \$252,000,000. A large quantity has, however, been marketed at considerably higher figures, and the total value of the crop will probably not fall short of \$270,000,000. It is estimated by the best judges that the next years crop will amount to 3,500,000 bales, and if like prices be obtained, it will be worth \$312,000,000. The food crops have not been neglected in the meantime, and sufficient has been produced to meet most of the demands for home consumption.

There are three leading reasons for this wonderfully improved condition of the Southern States. The first is, that no longer depending on slave labor, the planters have had resource to the improved agricultural implements of the North, and can till a much larger tract of land at a greatly reduced expense, and in a greatly improved manner. The second is, that fertilizers have been generally employed, and the lands renovated to that extent. Great activity has been noticed. In South Carolina not less than 28,000 tons were applied to lands within four months, and almost as great use of fertilizers has obtained in other Southern States—the principal consumers being proprietors of small farms. The third reason is, that a large addition has been made to the cheap labor of that section by emigration from Virginia, Kentucky and the Eastern States. They are now demanding the assistance of Chinese laborers, and will avail themselves of this lever, which the unreflecting of California affect to hold in utter horror. These are the three leading causes of marked prosperity in the Southern States. With the augmented use of machinery and fertilizers, and an increased working force, there is good ground to believe that next year's crop will fully reach the figures above given, and some even go to the extent of estimating that it will be 3,750,000 bales. Cotton is one of the most precarious of crops, but the cutting up of large and unwieldy estates into small cotton farms enables the planter to bestow more care and special attention to his growing plants. He can cultivate to better advantage, and reap larger returns from less land, and with less cost and labor, than he could under the old system. The tobacco and rice crops also show increased average, and unless overtaken by some unlooked for calamity, will give good returns. It is feared that the marked attention given to cotton raising will induce negligence in the planting of food staples, but we have no such apprehension. The people of the South have felt too severe suffering from this cause, and will scarcely permit themselves to be again overtaken by a like calamity. With an offset of some \$250,000,000 in the shape of cotton bolls; the food resources of the grain producing regions; heavy exports of lumber and other domestic produce; the whole country will occupy a much better financial position than any time since 1860. Add to this, the increased confidence in our national and other securities; the economical management of the administration; efficiency and honesty in the collection of revenue, and the increased purchasing power of greenbacks, by reason of their enlarged field and greater demand, and we arrive at the conclusion that the prosperity of the South presages that of the whole country.

There are now 445 blast furnaces in the United States.

Railroad Items.

—At the annual meeting of the stockholders of the Des Moines and McGregor Railroad Company, on June 1st, the following officers were chosen: President, J. M. Woodbury, Marshalltown; Vice President, Wm. Larrahee, of Fayette County; Treasurer, G. W. Couch, of Blackhawk; Secretary, F. M. Mills, Des Moines. The Executive Committee were authorized, after the conference with the Directory of the Milwaukee and St. Paul Railway, to make arrangements for commencing work on the northern portion of the line; any where on the route sufficient tax will be voted to authorize them to break the ground.

—The Executive Committee of the Northern Pacific Railroad Company have awarded the contract for the construction of the Minnesota Division of the road (230 miles in length, extending from the Dalles of the St. Louis River westward to the Red River of the North), to a combination of the old Canadian firm of Ross, Payson & Co., with the Minnesota firm of Brackett, Morrison & Co. The entire work is to be completed by July 1, 1871. The Committee have also contracted for 20,000 tons of rails with the iron appendages necessary, and the engines, cars, &c., required for the work.

—The contract for the iron superstructure of the New Hudson River Bridge, at Albany, has been awarded to Kellogg, Clark & Co., bridge builders, of Phoenixville, Pa. The whole work will be completed during the season of 1871. Messrs. Brainard, Fenner & Ketchum, of Albany, have been awarded the contract for dredging for the new bridge, and Stephen Miles, of Greenbush, has the contract for driving the spiles.

—Charles H. Clough, a smart and exemplary young man, recently employed with his father, H. P. Clough, in the Atlantic and Great Western and Cincinnati, Hamilton and Dayton ticket service here, has been appointed ticket agent for the Erie road at St. Louis. — *Commercial*, June 17.

—The Green Bay *Advocate* says the surveying party under Chief Engineer Rice have completed the preliminary survey for the G. B. and L. P. R. W. as far as New London, and find the route a very favorable one. The locating party will commence operations at once.

—The contract for building two sections of the Midland Railroad, near Newark, N. J., and a bridge over the Passaic, at Woodside, have been awarded to Messrs. Backus, Sanford & Sandford, and Overton & Lewis, for \$250,000.

—All the conductors of the Chicago and Northwestern Railroad will be clothed in uniform—blue coats with brass buttons, blue vests, and caps with two gilt bands.

—The Union Pacific Railroad Company is employing Chinese laborers for the section west of Cheyenne, and the displaced laborers are making threats.

—The last rail of the Denver Pacific Railroad was laid at 3 P. M. yesterday, and the first train arrived at Denver last night.

—At New Lexington, Perry County, Ohio, yesterday, ground was broken for the Atlantic and Lake Erie Railroad.

—The Lake Shore and Michigan Southern Railway will divide four per cent.

THE SALT PRODUCT OF THE SAGINAW VALLEY.—The salt product of the Saginaw Valley for the present year is estimated at \$600,000 barrels, a little more than last year, and actual figures may slightly overrun this estimate. Early in the season an understanding was effected between the Saginaw and Bay Salt Co. and the Onondaga Salt Co. of New York, through which the Western ports and cities should be supplied with salt, in such a manner as to avoid the crushing competition that has existed between these rival companies of territory of markets. The arrangement is made on the basis of the amount of salt made by each company last year. To all ports and markets west of, and including Cleveland, the Onondaga Co. is to ship four-sevenths, and the Saginaw Co. three-sevenths.

The disposition of our salt this year, on a basis of 600,000 barrels, will be about as follows:

	Barrels.
Cleveland.....	65,000
Toledo.....	65,000
Sandusky and Detroit.....	20,000
Chicago.....	300,000 to 350,000
Milwaukee.....	50,000 to 60,000
Mackinaw, Grand Haven, Waukegan, Racine, and Lake Michigan ports, hal- ance, say.....	40,000
	600,000

Between 100,000 and 200,000 barrels have already been shipped, a large portion of which has gone to Chicago.

NARROW-GAUGE RAILWAY.—We gladly insert at a late moment for the present issue, the following brief extract from a letter giving some account of the successful working of the narrow-gauge railway at the Thomas Iron works, at Hokendauqua, Pa. The line was built to take away the cinders from the blast-furnaces: "The road is 2 feet 6 inches in gauge, and is the same as when we used horse-power. The engines were built by Messrs. M. BIRD & Co., at the Baldwin Locomotive Works, in Philadelphia. The steam-cylinders are 9 inches diameter and 12 inches stroke; dividing-wheel 30 inches diameter, with steel tiers 2 inches thick. In order to economize in room, we ascend very rapidly to the tip, or dump, and a portion of the road has a gradient of 4 feet in 100 feet, or 211 feet per mile. Our cinder cars are four-wheeled, weighing, when loaded, 3 tons 5 cwt. gross; wheels only 16 inches diameter. The engines weigh, when ready for work, with tank full of water, 8 tons 4 cwt. gross. One of them will haul, with ease, up this gradient of 211 feet per mile, 8 of the cinder cars, making an aggregate of 26 tons, and that with a boiler pressure of only 120 to 125 pounds per square inch." — *Van Nostrand's Engineering Magazine*.

SHIP BUILDING ON THE CLYDE.—There are on the docks at one ship-building establishment in Glasgow, eight iron steamers, and two others are under contract, and will be commenced immediately.

It is said that a manufactory will soon go into operation at Mauch Chunk, designed to prepare the coal dust and siftings at the collieries into a merchantable fuel. Many experiments have been made during the past few years to utilize the vast mountains of screenings which are to be seen at the entrances of the extensive collieries, but generally the results have not been very satisfactory.

CALIFORNIA SILK.—The silk manufacturers are looking forward to the time when raw silk can be obtained from California equal to their demands. The specimens already obtained from California cocoons are pronounced by experienced manufacturers as equal to the best silk of India or Japan, the fibre being very strong and fine, free from impurities, and remarkably smooth and glossy. The difficulty hitherto has been in getting proper machinery for reeling the cocoons in the districts where they are grown. When that difficulty is removed, as it is in a fair way to be, the silk growers and the small colony of silk manufacturers in the country look forward to a bountiful harvest.

A new use has grown up for sponges that appears destined to win its way to public favor. We refer to the manufacture of elastic sponge, to be used for the filling of cushions and mattresses. It has been found that by moistening them with glycerin they retain their elasticity for a long time, and as they contain iodine, it is said that they are not liable to the attack of insects. In former times the sponges were burned and the ashes were used for medicine—afterward attempts were made to save the iodine known to exist in them. This new use seems to be one of the most important hitherto suggested, and appears to be well worthy of the attention of upholsterers and furniture dealers.

A new and very delicate test for arsenic has been discovered by Bettendorff. Its sensibility is so great that it is said to be capable of detecting one part of arsenic in a million parts of solution; and the presence of antimony does not affect it. In order to apply this test, the arsenious or arsenic liquid is mixed with hydrochloric acid until fumes are apparent, thereupon chloride of tin is added, which produces a basic precipitate, containing the greater part of the arsenic, as metal mixed with oxyd of tin.

Specimens of a new silver coinage have just been struck at the United States mint in Philadelphia of the denominations of ten, twenty-five, and fifty cents. Three different specimens of each of these denominations have been submitted to the Treasury Department for approval. The standard value of the new coins is reduced to correspond in actual value with our present "currency," with a view to its immediate use instead of the ten, twenty five and fifty cent notes.

An English trade circular estimates that Great Britain will require between April and September 1st, at least 24,000,000 bushels of wheat, involving at least shipments of half a million of bushels (including flour) from this country for the balance of the season.

The incorporators of the Pacific telegraph are Cyrus W. Field, Peter Cooper, Moses Taylor, Marshall O. Roberts, Wilson G. Hunt, Samuel F. B. Morse, Dudley Field, Wm. H. Webb, of New York, and Darius Oden Mills, of California.

A new oil spring was discovered in Isabella county, Michigan, on the 29th ult., by Mr. Norman, of Mill Brook, on his farm.

The North has 5,848,477 spindles, and the South 196,772.

Le Van's IMPROVED BOILER Feed Pump,

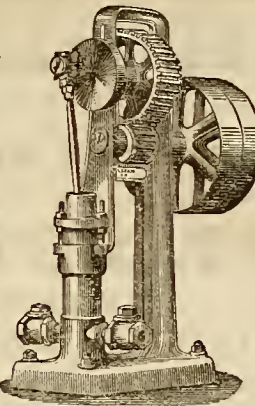
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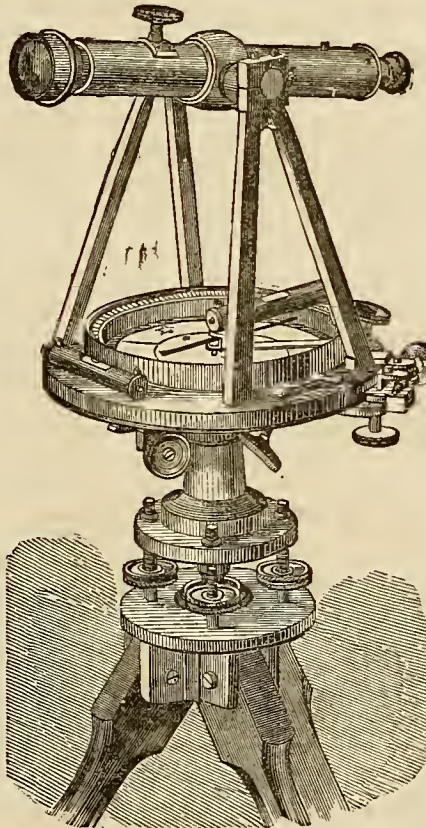
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WITH THE PRIVILEGE OF GOING TO
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BAGGAGE CHECKS via Baltimore & Ohio R.R.

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JANUARY 1st, 1870.

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Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph
Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois
Central Railroad.

TRAINS RUN AS FOLLOWS:

St. Louis, Evansville and Cairo
Mail..... 7:15 A. M. 10:55 P. M.
Osgood Accommodation..... 3:10 P. M. 8:45 A. M.
Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:30 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Office, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.
C. E. FOLLET, Gen'l Ticket Ag't, St. Louis, Mo.

CHANGEABLE GAUGE CAR TRUCKS

As in use on the National Despatch Line of Cars, adapted to two or more gauges. For information apply to

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1100 MILES under One Management. 860 MILES without Change of Coaches.

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NEW YORK, NEW ENGLAND

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CLEVELAND to NEW YORK, - 625 Miles.
DUNKIRK to NEW YORK, - 460 Miles.
BUFFALO to NEW YORK, - 423 Miles.
ROCHESTER to NEW YORK, - 385 Miles

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TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoaday Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,
(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,
daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.33 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

IF The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

IF The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through
And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. E. SHATTUCK, Gen'l Pass'r Ag't
W. M. R. BARR, Gen'l Pass'r Ag't
General Southern Agent.

Best Route to St. Louis and Chicago

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Great Through Passenger Route from CINCINNATI to

**ST. LOUIS,
CAIRO,
CHICAGO,**

Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

IF The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail...	7.20 am	12.40 am
St. Louis and Springfield Express...	2.40 pm	7.35 am
St. Louis and Springfield Express...	10.20 pm	3.42 pm
Lawrenceburg Accommodation...	10.10 am	2.35 pm
Lawrenceburg Accommodation...	4.50 pm	8.25 am

*The 10.50 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)...	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo...	7:15 A. M.	5:40 P. M.
Springfield Accommodation	2:30 P. M.	10:40 A. M.
Sandusky, Cleveland & Buffalo...	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond...	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	10:20 A. M.
Hamilton Accommodation	9:30 A. M.	8:05 A. M.
do do do	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

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SAM'L STEPHENSON, Gen'l Ticket Ag't.
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**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

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Louisville, Nashville, Memphis, New Orleans, and all points South.

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	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7.35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

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CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Esaoon with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

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Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Old Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Care to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburgh, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:22, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 4 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent
H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }

W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JUNE 30, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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WRIGHTSON & CO., Prop'r's.

What do we Import? and How are we to Pay for it?

The financiers of this country, gentlemen who ought to be called fancy-fliers, are putting themselves to a great deal of trouble to find out how to pay our debt, and how to reduce taxes.

What is called "financiering" is the merest humbug in the world, unless we confine it to the simple acts of banking. This consists in the difference between long notes and short notes, deposits and discounts, &c., &c. There is considerable art in the management of money in this way, and there is considerable art in the different modes of raising taxes; but at last, if we mean to be honest and pay our debts, it comes to this:—that we must raise money enough to pay the interest and part of the principal. Anything short of that is dishonest. Then 'all the financiering that is possible comes to this: *to live within our means*—leaving margin enough for the purposes of the public debt. That is all there is of the problem.

Now, one of the very first things which stares us in the face—which has been the great financial difficulty of this country in all times—is not the public debt, but the commercial debts; in other words, the extravagance of the people. The mode in which this operates most strikingly is the importation of foreign merchandise. A lady

says she must have a hundred dollar silk dress, and she says she has the money for it; and who has a right to forbid her? Certainly no one!

But here is a railroad company; it wants 5,000 tons of rails, and says it can get off its bonds by buying the rails in Europe. This may be well for the company; but, what is the practical result? There is so much American labor unemployed by that capital, and so much debt to pay in Europe. And here is where the whole difficulty in American finance lies. We are constantly importing from Europe an immense mass of merchandise, which is either wholly unnecessary, or unnecessary to get from Europe. All this must be paid for, and the payments for it requires a large part of the funds of American labor to pay for it, and that payment is made out of the country. Since importing merchants can not calculate exactly what is wanted, and since two-thirds of the whole value is on credit, it happens inevitably that commercial convulsions periodically occur; and when they do occur, credit is immediately restricted, the revenues are reduced, individuals are ruined, and the Government embarrassed. This happened at short intervals before the war, but now for ten years has not happened. Why? Perhaps our wise Congressmen and newspaper writers, and free traders, would learn something if they would inquire what is the difference between the commercial condition of affairs now, and that before the war.

We have been now five years at peace, and importation have been stimulated to supply the South; and yet we have no commercial convulsion. Why? Two causes have made this:

1. We have had a uniform material currency, and, paper money as it is, it has done much to preserve the stability of the country.
2. We have had a high tariff, and while importations were greatly stimulated, the tariff unquestionably restricted them much below what they would otherwise have been. Yet we have a set of men who think that to restrict foreign importation is a mischief. Such men ought to live in a country where they could ruin themselves without ruining others. If a large part of the tariff were taken off, and this country sets to wading in unrestricted foreign trade, a bloated inflation of credits would first follow; then contraction, suspension, bankruptcies, and probably the most extensive, ruinous overthrow ever known in this country.

We do not say to prevent tariff is right, or that it ought not to be reduced at all; but we do say that the reduction should be moderate, and that by degrees. The average of the present tariff is 47 per cent. on the whole mass of imported merchandise. Say the average was reduced 20 per cent., leaving the average on the whole 38 per cent. This would relieve the taxes on many goods very

much, and probably not reduce the revenue; but it would increase importation to the full extent of an hundred millions, and be as much as the commercial interests could possibly bear. Nothing more than that could be borne. But it is not our purpose to comment on the tariff, but simply to show what we import, and how we pay for them.

The returns from the 1st of March, from the Bureau of Statistics, prepared by E. L. Young, a gentleman who deserves great credit for his statistics, gives the result of eight months, being just two-thirds of a year. The principal articles imported were as follows:

Free articles.....	\$ 30,418,574
Coffee.....	15,335,447
Manufacturers of cotton.....	15,826,800
" " silk.....	14,839,042
" " iron.....	20,500,000
" " flax.....	11,800,000
" " leather.....	6,600,000
" " glass.....	2,700,000
Hides imported.....	9,200,000
Manufactures of wool.....	20,700,000
Wool.....	5,000,000
Sugar and molasses.....	32,700,000
Other articles.....	80,000,000

Total value of importation in
8 months.....\$288,215,663

Importation for a year at the
same rate.....\$432,323,494

Now, it will be observed that in the ab sum near one hundred millions—at the rate of an hundred and fifty millions in a year—are of the manufacturers of cotton, wool, iron, leather, glass and flax—and those articles ought not to be imported at all. Why are they imported? How is it possible. Simply this, and no more or less, that the European laborer works for half what an American can. And why this? Because capital oppresses labor in Europe, and will oppress it here unless the laborer can be protected against foreign competition; but let us proceed. Great as the importations of 1870 are, we have paid for them. So far, so good. *How* have we paid? The following are the principal items:

Cotton and cotton manufactures..	\$139,118,000
Flour, wheat and breadstuffs.....	54,743,000
Provisions and the products of animals.....	18,726,800
Tobacco and its manufactures...	17,232,000
Petroleum and oils.....	22,350,000
Gold and silver.....	27,237,000
Miscellaneous products.....	47,035,000

Total exports of 8 months...\$325,183,000

Exports for a year at the same
rates.....\$487,774,000

This shows a balance in our favor of over \$50,000,000. That balance, however, is made up by the exportation of gold and silver, which is a native product.

On the whole, this is the most prosperous commercial year the country has had in a long while, and croakers may as well hide their diminished —.

Pittsburg & Chicago Railroad.

President Garrett in his recent able speech to the directors of the Baltimore & Ohio Railroad, is reported to have said:

"That an independent line from Pittsburg to Chicago was a matter of so much importance to the B. & O. Company, as well as the City of Baltimore, that he, in company with some of the leading citizens of that city and other officials of the road, had passed over the country between Pittsburg and Chicago and found the people greatly interested in the contemplated work, ready and willing to afford all the aid in their power—and several routes quite practicable. And that the people of Chicago are alive to the importance of this new connection, with the sea front at Baltimore, and would doubtless find their profit in transacting a large portion of their eastern bound business upon that line.

For some time it has been understood, that a new road from Pittsburg to Chicago was under consideration by the B. & O. managers; and we believe there has been one or two companies organized in Ohio, to so advance their respective interests as to meet this want. But, rumor to the contrary notwithstanding, we believe this is the first official announcement of the intentions of that company, and that the matter had progressed as far as Mr. Garrett discloses.

We have been at some pains to ascertain the route passed over by President Garrett and his friends, or that was likely to be chosen; but, until within a day or two, we only learned that the face of the country admitted of several practicable lines, and that, keeping distance in view, all would be considered in due time, and that one selected that yielded the largest amount of local aid, and business support.

It was this understanding, we suppose, that induced the organization of the Companies which we have spoken, and that prompted the surveys and efforts for local aid, that have agitated the people upon two if not three routes through Ohio.

We are now advised, however, that the line more favorably considered by the B. & O. Company than any other, is as follows: From Pittsburg to New Castle, in Pennsylvania, a point a little east of the State line; on the Pittsburg & Erie road—thence, to Akron, Ohio; thence, to Tiffin, Ohio; thence, upon an air line to Chicago; leaving the State of Ohio near the north west corner of Paulding county.

We do not understand that this location is absolutely made, but that it is quite likely to become so, as it meets with great favor with the B. & O. directors, and has excited such a local interest as renders the line unusually attractive.

The weighty consideration in this choice are:

1st. Proximity to Lake points so as to command part of their trade for this line. That is, to squarely compete with the roads now doing their business.

2nd. The large amount of graduation and masonry that is already done upon part of this route, and that will probably fall into the hands of this Company at a mere nominal sum.

3rd. The fertile and well settled character of the country in both Ohio and Indiana through which the line passes.

4th. The large material support given the project by the people.

These are certainly well taken points, as the lawyers say, and considering that nothing is lost in distance or cost of construction seems to be wise and final.

But, we would suggest to the managers of the B. & O. Company, before they settle upon this line, to look carefully over a route directly from Pittsburg, west through the State of Ohio and into Indiana to some point on the Wabash River, that affords a practicable divergence to make the necessary nothing to Chicago. Such a line would have the merits of—1st. directness, almost if not quite that of an air line, from Pittsburg to the point of detour, and from that point to Chicago. 2nd. Of being so far away from all competitors as to command the local trade of a belt of country of equal fertility and density of population to that of the northern one, and of more than twice its extent. 3rd. It would touch a number of prosperous towns in both Ohio and Indiana, not now supplied with an east and west thoroughfare. 4th. The cost of construction, will be no more than that of the other. Even admitting that the 47 miles of grading upon the northern line should be a donation to the Company. And there will be easier grades and less curvature than upon the northern route. 5th. There will be as much, if not more local aid upon this line, than upon the other. So we are informed by those who ought to know. 6th. By this route a better entry into Chicago can be had than by a line close to the Lake Shore.


And now so far as the proximity to the Lakes for the purpose of commanding a part of the trade of the lake ports. We would in no wise disparage the value and importance of this traffic, but, let us inquire how much of it, is likely to come to this new line.


Each of these ports now have lines of railway leading eastward and connecting with Pittsburg, in which their leading men are more or less concerned. Their trade is established, and their facilities quite equal to its demands. This, then, at best can only yield a divided business, and that at low competitive rates. But as the B. & O. Company now own the old Sandusky, Mansfield & Newark road, they are secure in the Pittsburg trade from that point, and they have only to revive the old


coast line from Sandusky to Toledo, to secure a large Toledo business, and these are really the only Lake ports that the Company can expect to receive much from. Or, to secure the Toledo traffic, let the B. & O. Company enter into relations with the new road about to be constructed from Toledo to Newark, and now under the direction of Mr. J. E. Conant, of New York. This Company would be glad to carry business as far on its line, as the point of intersection of the line we advocate, whereas, it would not be very attractive to take it to the point of intersection of the New Castle line. By this arrangement the B. & O. Company, will lose none of its lake port interests, and will not sacrifice the great and better local traffic of the more southern line to obtain them.

We certainly think these are considerations of great moment, and not to be lost sight of, in looking not only to the present, but the future of a thoroughfare such as the Pittsburg & Chicago road, is undoubtedly capable of becoming.

New Music.—John Church & Co., have laid upon our table the "Saengerfest March," by H. D. Sofge. The title page has a most excellent picture of the great Saengerfest Hall and the music is worthy of the occasion—the International Feast of Music. The "March de Triomphe," by Alfred H. Pease, is very fine and spirited, while the "Beauties of Martha" by J. Brinley, is not only what it purports to be, a compilation of the beautiful passages of this celebrated Opera, but they are also possessed of the merit of being easy. "Starry Waves" by Mrs. Sue Ingersoll McWilliams, is a very pretty air and sweet words. "Safely, through another week," is a sacred quartette, by T. C. O'Kane; the accompaniment is very fine, and the Song is peculiarly adapted to parlor singing on the Sabbath.

 We acknowledge the receipt of a complimentary ticket to attend the Commencement Exercises of the Polytechnic College of the State of Pennsylvania. We regret our inability to be present; we trust that the Polytechnic College may long continue in its career of usefulness, and that with its years its prosperity may increase.

 We received a pleasant call this week from J. H. Potter, of the Burlington & Cedar Rapids Railroad. Mr. Potter says: "out west," is the country to build railroads in. Business active, money plenty, and prospects fine. Mr. P. looks as though the West agreed with him. May his shadow never grow less.

 An Iowa farmer's harrow teeth scraped a rock a few days ago, and revealed the fact that it was a nugget of pure copper, weighing 117 pounds.

Resignation of Mr. L'Hommedieu.

It will be seen by the letter annexed that S. S. L'HOMMEDIU has resigned the Presidency of the Cincinnati Hamilton & Dayton Railroad Company, to take effect on the 4th of July. That will be the twenty-second anniversary of Mr. L'HOMMEDIU's election to the office which he now voluntarily surrenders, having been successively indorsed by the stockholders, and the last time most emphatically, notwithstanding a formidable opposition.

Mr. L'H. will leave for Europe on the 13th of July, with his wife and two sons. He goes abroad, not for his health, for *that*, we are glad to say, is in excellent condition, but for recreation. He is fairly entitled to a season of rest. In the true sense of the word he has been a *working man*. It is now fifty years since he commenced work in the office of the GAZETTE, and from that day to this, with the exception of five months in Europe, thirty years ago, he has worked without intermission.

Within this time what improvements have taken place! Forty years ago he passed over the first mile of railroad on the Atlantic coast, looking westward. He has now returned from California, having passed over the last mile of road that connects the Atlantic with the Pacific. Then there were not one hundred miles of railroads in the United States. Now, how many thousand! This great work of railroad building is one of the wonders of the past half century, and those who have taken part in it may well say they have witnessed more in fifty years than had been usual in five hundred years. Mr. L'HOMMEDIU did his share in this great work, and did it well. The C. H. & D. road, of which he has been President from the first, was constructed exclusively by private capital, and throughout the whole time stockholders have, on the average, received fair annual dividends, and the property is now in a most healthy and prosperous condition. Of few roads in the country can this much be said.

We are pleased to know that Mr. L'H. does not propose to retire from active business upon his return from Europe. He *feels* too young for *that*. There is a great deal more work in him to-day than in many of our modern men who have reached only their fortieth year, and it is his intention to see that nothing of this goes to waste. A host of friends will wish him a safe and pleasant journey, and extend to him a hearty welcome home on his return.

The following is the letter of resignation which the Board of Directors have accepted:—

PRESIDENT'S OFFICE, C. H. & D. R. R. Co.
CINCINNATI, June 25, 1870.

To the Board of Directors of the Cincinnati, Hamilton & Dayton R. R. Co.:

GENTLEMEN—I hereby tender my resignation as President of this company, to take effect on the 4th day of July next, the anniversary of my election to that office twenty-two years ago.

It is proper for me to say that the pledges originally given, and often since repeated by me, have been made good to our stockholders.

They have received on their whole investment fair average dividends for a period of twenty-two years, and have now a property worth largely more than its cost, and capable of earning satisfactory dividends in the future. They have a road so constructed as to be worked with economy, in first class order, with a growing local and through business, and with all its relations toward other roads satisfactory—one free from debt, except that which is funded, and which may be discharged

by a sinking fund, without interfering with regular dividends on its capital stock; and one with a financial credit equal to that of any in the country.

The principal objects in building a railroad from Cincinnati to Dayton were to promote the interests of Cincinnati and the adjacent country, and at the same time secure a fair return on the whole capital invested. Both these objects have been attained, though it has taken many years of toil and anxiety to accomplish them.

I desire now to express my thanks to the Directors for the constant, able and willing support they have at all times given me in the discharge of my various official duties; and at the same time to acknowledge my obligations to all the officers and employees of the company for the faithful manner in which all their responsible duties have been performed for so long a period.

With the hope and confidence that the Cincinnati, Hamilton & Dayton road will continue to prosper in your hands,

I remain very truly yours,

S. S. L'HOMMEDIU, President.

After the reading of the resignation the board passed complimentary resolutions; and on the nomination of Mr. L'HOMMEDIU, DANIEL McLAREY was elected President by the unanimous vote of the board, to take effect on the 4th proximo.—*Cin. Gazette*.

The Pennsylvania and the Erie.

Considerable surprise has been manifested that the Pennsylvania Railroad Company should give any facilities or form any kind of an alliance with the Erie Company during the present contest. It has been generally understood, and, indeed, it has been evident enough, that the Pennsylvania has been as much as any company hostile to the Erie, and has thwarted it repeatedly in some of its most important schemes. It has even been reported that the conflict is not so much between the Pennsylvania and the New York Central as by the Pennsylvania and the New York Central against the Erie, which, being crushed between the upper and the nether mill-stone, would be out of the way of both companies, leaving to be divided between them the business which it has hitherto had.

It seems to have escaped those who have formed this opinion that, however the stockholders or managers of the Erie Railway may suffer, the road and rolling stock will remain. The company may become bankrupt, the managers unable to pay even their operating expenses, the property may be put up at auction to satisfy creditors, yet there will still remain the track from Dunkirk and Buffalo to New York, which some one must own. It is, of course, not to be believed that the roads will continue to do their business at less than cost until one is absolutely worn out. Yet this would be necessary if it was intended to put the Erie Railway out of the way.

But, the road being in operation and sure to be operated by some individual or corporation, the important question is, who shall have it? It is quite possible that the Pennsylvania Company has no liking for Gould and Fisk, that it would very much prefer some other management, even if it were a hostile management; but it is quite certain that it is not willing to see Fisk and Gould driven out to make room for Vanderbilt. Against any such event it is bound to contend, and while it may give nothing for the

benefit of Erie, it may be very generous to defeat the schemes of Vanderbilt. The New York Central is strong enough now; commanding all the rail routes between Buffalo and New York, it would almost monopolize the lake business. So long as the Erie has an independent management—no matter what its character or its temper towards the Pennsylvania—the New York Central can not have the entire lake traffic to support it and strengthen it for further conquests.—*The Railroad Gazette*.

Cumberland & Ohio Railroad.**REPORT OF THE JOINT COMMITTEE OF THE CHAMBER OF COMMERCE AND BOARD OF TRADE.**

The joint committee appointed by the Chamber of Commerce and Board of Trade to consider the claims of the Cumberland & Ohio Railroad for aid from our citizens, yesterday submitted the following report:

In order that the claims of this company may be fully understood and properly appreciated your committee deem it necessary and proper to give a concise statement of the route proposed, the results already accomplished by the company, its prospects for the future, co-operative enterprises, etc., as furnished by the President, Mr. Z. F. Smith, and the agents of the company now in this city, with whom they have been in consultation.

With Cincinnati as its Northern terminus, it is proposed to run a main trunk, under a charter from the State of Kentucky, from or near the point where the Short Line road crosses the Kentucky river through the counties of Henry, Shelby, Spencer, Washington and Marion, to the town of Campbellsville, in Taylor county, and then to branch along the most practicable routes in the direction of both Nashville and McMinnville to the State line. From the junction with the L. C. & L. Railroad to Lebanon Ky., the distance has been ascertained to be 74 miles, and from Lebanon to the State Line on Big Laurel creek, 96 miles, making the total length of line across Kentucky 170 miles.

From surveys made by Captain Chilse and other engineers, the whole distance from Cincinnati to Nashville by the proposed route of this road is estimated at 288 miles, which can be reduced 15 miles by going directly to Nashville. And from Cincinnati to McMinnville the distance is about 280 miles, by which route a more direct and shorter road than by Louisville can be had between Cincinnati and Chattanooga, which can be reached directly by building about 70 miles of road—if in the future, it should be deemed expedient to extend from McMinnville, one of the objective points of this road.

During the last week the Danville and McMinnville Company has been consolidated with the Cumberland & Ohio, by which the latter has acquired \$630,000 additional, with which to construct south of Campbellsville toward the State line.

In regard to the resources of the road, the committees have been informed that county and private subscriptions amounting to \$2,600,000 have been obtained in Kentucky along the Nashville route, independently of the \$630,000 above stated on the McMinnville extension in Kentucky, or \$17,000 per mile across Kentucky to the Tennessee State line, besides which large means and resources have been guaranteed in Tennessee to extend the road to Nashville. To complete the extension from the Kentucky line to McMinnville, \$16,000

per mile have been obtained from State aid, county and private subscriptions in Tennessee.

Surveys for location are being made, and it is proposed to put one hundred miles, at the beginning of the junction with the L. C. & L. R. R., under contract for construction at the earliest practicable moment; and the committee are informed that within that length of line \$2,000,000 have been already subscribed, with \$200,000 additional safely calculated upon, which is an amount sufficient to construct the road bed, masonry, bridges, &c., and leave a considerable cash balance to be carried forward to the account for iron, &c.

From the foregoing it evidently appears that the company has accomplished large and important results within a limited period of time, and that the Cumberland & Ohio road is already upon such a foundation as to give strong assurances that its entire programme will ultimately be carried out; and while it is not under the control of our city, yet the committees do not hesitate to say that it offers to Cincinnati, Covington and Newport almost invaluable benefits and advantages, and therefore they most cordially commend it as eminently deserving of patronage and encouragement at the hands of our citizens, and can not conclude this report without expressing the earnest hope that the assistance asked for (\$1,000,000) will be promptly and cheerfully given.

At the request of the representatives of the company, the committees recommend that the Chamber of Commerce and Board of Trade each appoint a committee of three to advise and confer with them as to the best mode of obtaining subscriptions, &c.

GEO. F. BOUVE,
W. H. HARRISON,
W. E. LONDON,
THOS. G. SMITH,

Committee Board of Trade.

B. EGGLESTON,
C. W. ROWLAND,
C. G. ENGLAND,
JOHN S. SLOAN,

Committee Chamber of Commerce.

Railroad Chinese.

A San Francisco railroad man sends us a lithographic sheet containing (we take his word for it) the latest time table of the California Pacific Railroad. It is headed "California Pacific Railroad and Steamer New World, *via* Vallejo, California," and has a handsome lithograph engraving, representing a train, steamer, station, etc. The remainder of the sheet explains itself readily—to those familiar with the Chinese language and literature. Our Chinese editor being absent, we refrain from presenting a translation of the document. As for giving it in the original, we tried that last winter with a smaller poster of the same kind. We can not say that it did not attract attention, but we have never been able to learn that the California Pacific Railroad gained any passengers by that advertisement. But as the Chinamen have begun to come in this direction, it may not be long before railroads in the Mississippi Valley, as well as those on the Pacific slope, will need such advertisements.—*The Railroad Gazette*.

It is stated that there are now sixty-four cables in active use, the shortest of which is 3 miles long and the longest is 3,014, and their total length is 22,007.

Newport News, Va.

A gentlemen writing of the prospects of this place, and speaking of it as the natural terminus of the Chesapeake & Ohio Railroad, and the business of this great outlet to the sea, says:

From the earliest history of the country the leading minds noted the commanding topographical and geographical position of Virginia's territory for the main lines of connection between the great central interior of the West with the most eligible terminus on the Atlantic coast. A necessity for this connection between east and west was apparent from the very conformation of the continent. The most direct, the shortest, and cheapest outlet to the ocean was required by an immense back country of indefinite extent.

This necessity started all the plans of Fiske and of General Washington for the Chesapeake and Ohio, and the James River and Kanawha Canals, and prompted Clinton to put in progress and complete the New York and Erie Canal. The water communications stand and stop where the mountains obstruct them, and the railroad is found to be the only practicable means of transit and transportation until population and wealth shall so increase as to be able to do whatever is required for full development.

The continent is most striking in its grand features. A line of lakes in the north, running from west to east, and from the head sources of the north-western rivers to the Gulf of St. Lawrence; and a system of rivers, the principal of which are the Missouri, the Mississippi, the Ohio, and the Susquehanna, east and west, rising near the sources and shores of these lakes, running from north to south; those on the east of the Appalachian chain emptying into the ocean midway the Atlantic coast at the mouth of the Chesapeake bay, and those west of that chain, the main artery, the Mississippi, rising near the waters of the Winnipeg lake, and running through the whole length of the continent, emptying into the Gulf of Mexico, and having the mouths of its main branches, the Ohio from the east and Missouri from the Andes, in the center, midway between the lakes and the gulf, and nearly due west from the mouth of the Chesapeake bay in the center of the Atlantic coast.

The mountain ranges were no less marked and distinct. A chain from one hundred to two hundred miles in width, dividing the eastern slope from the Mississippi valley, runs a general course north-east and south-west from the lakes nearly to the Gulf. Thus the valley of the Mississippi and its branches, to get to the Atlantic, was compelled to go northward by the lakes, and encounter its frosts, or southward by the Mississippi, and encounter an almost tropical climate; and in either course to make an immense circuit of distance, out of all reason compared with the distance of a direct line from the center of the valley at the mouths of the Missouri and the Ohio rivers. But to get that direct line, it has to cut through and cross over the mountains and rivers of the continent transversely.

This natural necessity for an outlet has built up the unparalleled prosperity of the commerce of the lakes, and has been the cause of the exporting center of trade at New Orleans. New York and New England tapped the lakes, and Philadelphia had the command of the forks of the Ohio at the mouths of the Monongahela and Alleghany, and Pittsburg is made

a center there. The fostering patronage of alternate sections of the public lands by the Federal Government has cancelled all the north-west of the States of Ohio, Michigan, Indiana and Illinois with railroads; Chicago is the center there, and St. Louis is the depot of all the trade of the Missouri and the Mississippi. And Cincinnati and Louisville, Ky., are the centers of the trade of the Ohio valley. And this trade of the valley of the Mississippi is the great source of the wealth of the continent. On its pabulum mainly the commerce of the country must depend. But yet it needs, and must have, its shortest, most direct, and cheapest outlet to the Atlantic.

It has not yet obtained it, and *can get it only through the territory of Virginia*

Virginia most sagaciously retained what is called her Pan Handle, in the settlement of her boundary lines with Pennsylvania—the territory lying between the western boundary of Pennsylvania and the Ohio river, as far north nearly as Pittsburg. This compelled every State north of Virginia to run their lines north almost to the very lips of the lakes, in order to get to the west, without first obtaining her consent. And no works so far north could ever compete with her more southern, and central, and shorter, and cheaper routes, owing to the greater distance and the obstruction of frost. Unfortunately, from various causes, needless now to discuss, Virginia constructed no central line to the Ohio, and yielded the advantage ground of the Pan Handle to Maryland, and thus made Baltimore the emporium of commerce she now is, and made Maryland our successful rival for a port on the Chesapeake.

But still the main and only central outlet, by a line direct from the mouths of the Missouri and the Ohio rivers to the mouth of the Chesapeake, has not been begun, and can not be completed but by the consent and under the control of Virginia. It is now more than ever, and is every day more and more demanded, and, fortunately, by an interest so immense as to command it by its wealth at will. A belt of back country, in parallels half way between the lakes and the mouth of the Ohio, and half way between the mouth of the Ohio and the Gulf of Mexico, 250 miles at least in width from the Atlantic, indefinitely westward, demands this central, shortest, and most direct way to an outlet on the Atlantic coast, without going northward hundreds of miles out of its way to meet the obstacles of ice, or thousands of miles out of its way down the Mississippi river and through the Gulf to encounter the risks to flour and pork, and other products, by passing through an almost tropical climate. Distance and climate measure the necessity for this route, and Virginia alone has its track entirely through her territory, and she alone has its terminus at Newport News, on the Hampton roads, at the mouth of the James river, at the gateway of the ocean between Cape Henry and Cape Charles. She has the whole eastern portion of this route through her territory for 500 miles, and its western extent is just as far as population and improvements can and will reach to and towards San Francisco! It has every center of the whole middle interior of the valley of the Mississippi, St. Louis, Cincinnati, and Louisville interested to construct it; and whatever Virginia can do, or may do, to promote it, the work must and will be accomplished. The necessity for it is in exact proportion to the immense extent of country dependent upon it for quick, direct, and cheap transportation of produce, and to the incalculable per cent. of saving which

it will secure against the present delay and cost caused by distance and climate. The interest of import, export, and consumption in this route is not less than one hundred millions of dollars per annum, twenty-five per cent. of which at least would be saved by its construction and successful operation; and its cost all the way by rail to Cincinnati would not exceed twenty millions of dollars.

The route contemplated is from Newport News to Richmond; from Richmond to Lynchburg; from Lynchburg to Covington; from Covington to mouth of Big Sandy; from mouth of Big Sandy to Cincinnati; the whole distance being 621 miles.

The belt through which this line would pass embraces on the Atlantic front from the Potomac to the Southern limits of Pamlico Sound. Its northern parallel runs from Fredericksburg to Chillicothe, Ohio; thence through Indianapolis, Ind., to Springfield, Ill., and thence to Palmyra, on the Mississippi. Its southern parallel is from Newbern, North Carolina, to Memphis, in Tennessee. This portion east of the Mississippi is about 4 deg., or 240 miles wide, and it expands in width as it diverges westward. It includes all North Carolina and Tennessee, all Virginia and Kentucky, and all the Southern portions of Ohio, Indiana, and Illinois, east of the Mississippi. The centers of this belt are Cincinnati, Louisville, Memphis, St. Louis, and Point Pleasant, in the West, and Richmond, Lynchburg and Newport News in the east. These centers comprehend the trade in corn, oats, potatoes, fruits, hay, cotton, tobacco, wheat, whisky, flour, pork, iron, copper, lead, coal, horses, cattle, mules, and swine of the whole middle interior, from east to west, of the Mississippi river; and a reference to the census alone can compute their value and amount. Twenty-five per cent. thereon would in two years build the road, and run it, and it would save its cost in less time. At the lowest rate of transportation the profit of the work would be ten per cent. at least upon its cost; the ratio of business would be continually increasing, and increase rapidly the rate of profit on the work.

Williamsburg is situated on a dividing ridge about intermediate between the James and York rivers, in a beautiful and healthy section of country. Its principal public buildings are the Eastern Lunatic Asylum, a magnificent building, surrounded by spacious grounds, and capable of accommodating six hundred inmates, and the College of William and Mary, the oldest, with one exception, and one of the most celebrated in America. Until the removal of the seat of government to Richmond, Williamsburg was the capital of Virginia. The high character of its residents for intelligence, refinement and hospitality is still worthy of its ancient fame. Yorktown is also one of the oldest towns in the State, and is celebrated for having been the scene of the surrender of Cornwallis at the close of the Revolutionary war. In colonial times it was the center of the importing and exporting trade of Virginia and the Southern Colonies, and the immense cargoes of tobacco which were shipped to foreign countries all passed through this port.

This great trade, which has been diverted from its natural channel to New York, is destined, upon the completion of this road, to find its way to Newport News.

In its position below Warwick river, the line, as I have before stated, passes through large forests of heavy timber, the virgin growth of the soil. There is an abundance of the finest white oak and pine timber, some

of which has reached an enormous size, and was probably growing when the country was first settled. A pine that was felled on the line indicated, on counting as closely as could be done, an age of over two hundred years. The road supplies facilities for getting this almost inexhaustible. The navies of a kingdom could be built at Newport News from materials almost on the spot.

In an agricultural point of view, the Peninsula has great advantages. The soil is of unsurpassed fertility, and of a character adapted to the production of fruit in every variety grown in this climate, and particularly to the culture of grapes and of vegetables. The climate is delightful, and free from violent extremes of heat and cold.

As regards Newport News, the seaboard terminus of the road, I have to repeat what I said in my former report: that its harbor is known to be the deepest, safest, and most capacious in the world; it is accessible at all times, and can be entered with safety, in any season and in all weather, from any point and with any wind.

Newport News is situated at the mouth and on the north bank of the James, at its confluence with the Elizabeth and Nausemond rivers. It is seventy-five miles by railroad and one hundred and forty by James river from Richmond, fifteen miles from Norfolk, seven miles from Hampton, nine miles from Fortress Monroe, ninety-five miles from City Point, and twenty-two miles from the ocean. The location is healthy and delightful, and in every way well adapted for a city. It possesses all the advantages which render Fortress Monroe and other watering places on the Atlantic coast so attractive in the summer season, while the winters are not severe. It approaches nearer in climate and natural features of soil and productiveness to the Bermudas than any spot in the United States.

AMERICAN BESSEMER STEEL.—Four large steel works have already been established, two more are nearly completed, and several additional are projected. Previous to the burning of the Bessemer Works of Griswold & Co., of Troy, they had made 2,000 tons of rail, of which none have broken, and all are officially recommended as fully equal to the best for foreign rails. With the completion of the new works, this firm can produce 20,000 tons steel rails per year. The Penn Steel Works, at Harrisburg, produce some 13,000 tons per annum, principally for the Penn. R. R. Co., the official report pronouncing them equal to foreign rails. The Cleveland Rolling Mill produces steel rails at the rate of 8,000 tons, with a proposed capacity of 20,000 tons per annum. The Cambria Iron Co. has a Bessemer Steel Rail Works nearly completed, with a proposed capacity of 20,000 tons. These works alone indicate a capacity of production of 80,000 tons annually of American steel rails. The Hope Rolling Mill, at Allentown, is producing for the Lehigh Steel Co. puddled steel of a superior quality, under the new patent known as the Excelsior process. This Co. is receiving orders from all parts of the country for its products, and has run out a hundred heats of puddled steel since the commencement, without a single failure. The puddled steel stood a test of 64 tons to the square inch at Whitney's Car Wheel Works.—*Iron Age.*

The slate quarries at the Dallas, near Thompson, Minn., are said to be the largest in the world, and are about to be thoroughly worked.

Railroad Progress.

In the history of the growth and expansion of American Railroads for 1869-70, as compared with former years, we have the best evidence of the substantial growth and prosperity of our country. Notwithstanding the dullness of general business and the absence of anything like a speculative tendency in commercial operations, there has, nevertheless, been a very remarkable increase of our railroad system, which is all the more wonderful in view of the obstacles imposed by the lack of confidence, and the want of activity in mercantile circles. It appears from *Poor's Railroad Manual*, just published, that 7,745 miles of railroad were constructed in the year 1869, at an aggregate cost of not less than \$305,000,000.

It is only by comparison of the railroad progress in former years that we can gain an adequate idea of the industrial development of the United States. During the ten years from 1850 to 1860 only 2,000 miles a year were added to the railroads in the various States and territories. Since that period the progress has been as follows:

Years.	Miles.	Increase.
1860.....	30,635.....	—
1861.....	31,256.....	621
1862.....	32,120.....	864
1863.....	33,170.....	1,050
1864.....	32,908.....	733
1865.....	35,085.....	1,177
1866.....	36,827.....	1,742
1867.....	39,276.....	2,440
1868.....	42,245.....	2,979
1869.....	50,000.....	7,745

It is estimated that the increase during the next five years will reach 5,000 miles a year. The probability is that it will exceed this estimate, at least during the present and succeeding year. Railroad construction was never before so active. Almost every town in the West and North-west is taking steps to complete some missing links, and in the South, the progress is fully as rapid as the available resources and capital of the respective States will admit.

The completion of the Pacific Railroad has imparted an immense stimulus to railroad enterprise along its entire route. All the leading commercial centers in Kansas, Missouri, Minnesota, and the entire West, are making exertions to establish branch lines with the main arteries of travel. The construction of the Northern Pacific Railroad, which is by this time fairly commenced, and which is to be pushed forward with all speed, will also exert a prodigious influence in the development of a country about which little is known beyond the fact that it is the finest and most fertile wheat region in the world. Ground has been already broken near Duluth, and the first division, extending from that point to the Red River of the North, has been placed under contract. The North Pacific line of railroad commences at the head of Lake Superior and traverses Minnesota, Dacotah, Montana, Idaho and Washington Territory, till it reaches Puget's Sound on the Pacific. The route is through a country new to civilization, but rich in natural resources. The importance of railroads in creating commerce is only beginning to be understood. In ten years time the vast belt of country lying along the main route of the Northern Pacific Railroad will, undoubtedly, be populated by millions of persons. The influence of the Central Pacific Railroad is felt all over the world, and is leading to results, the importance of which can hardly be calculated. The Northern Pacific

Railroad will tend to foster and strengthen this growing influence, and bring us into new and permanent commercial relations with that part of Asia fronting the Pacific Slope, which now nearly numbers one-half the human family.

Mr. Poor estimates the aggregate net railroad tonnage of the United States at 72,000,000 tons, averaging \$150 per ton, and amounting to the enormous total of \$10,800,000,000—or more than three times the amount of the United States debt. The annual railroad commerce of the United States amounts to six times the original cost of the railroads. The gross tonnage per head according to population is 6,170 pounds valued at \$282 to each person in the United States. According to these returns, the value of the 7,745 miles of new railroad constructed in 1869, when the roads get fairly in operation amounts to no less than \$750,000,000. All this amazing development is of recent origin. In 1851 the railroad tonnage of the United States was only 5,000,000, the earnings of which amounted to \$20,192,104. The value of the tonnage was \$750,000,000. In 1869 the value of the tonnage had increased, as stated, to \$10,800,000,000—or fourteen times greater than eighteen years before. The average annual increase of tonnage since 1851 is 6,273,861 tons, and the average annual increase of value is \$556,666,666. In other words, the railroad tonnage increases annually at the rate of about one-fourth of the amount of the funded debt of the United States.

AMERICAN LAND GRANTS.—The Americans have set a wise example by their liberal course in dealing with the railway interests of their country, and had Canada followed it the Grand Trunk Railway Co. would not have been at this day dividendless, and the efficiency of the line as a carrying machine would have been materially enlarged. For a great part of its length the Grand Trunk runs through a rich tract of country, just as the Illinois Central does. The very back-bone of the Illinois Central has been its extensive land grant, which is so important to the interests of that Co. that it is estimated the value of the land will equal the cost of the line; and while conferring this great boon upon the railway Co. the country has gained the much greater advantage of a large district being cultivated and populated. To the Illinois Central Co. were given 2,595,000 acres, and that Co. have already succeeded in disposing of about 2,000,000 acres of it to numerous settlers who are busily at work cultivating the soil. The enormous advantages of this to the public of America is not to be measured by its advantages to the Illinois Central Railway Co., although the latter is so great that it is equal to the whole value of that long line!

We suppose it is too late now to ask of the Canadian Government a land grant for the Grand Trunk Railway. The line is made, and therefore the land could not be offered as a consideration for its construction, but it is doubtless unfortunate for Canada herself that she never made the Grand Trunk a land grant. No better means of populating a country, and cultivating the soil, could be devised, and we want no better proof of this than the actual operations of the Illinois Central.—*Herald's (London) Railway Journal*, May 28.

Improved Method of treating Wood for the Production of Paper-pulp.

According to Dr. Cattell's process for treating and preparing a fibrous material from wood for the manufacture of paper-pulp, the wood is taken in the form of fine shavings, shreds, filaments, and well washed in cold water. It is then placed in a bath consisting of a solution of borate or bi-borate of soda, potash, or ammonia, and phosphate of soda, potash or ammonia, in the proportions of three lbs. of the borate or bi-borate and one lb. of the phosphate, together with one quart of benzole, petroleum spirit, coal-tar, naphtha, bisulphide of carbon, rectified turpentine, or other volatile solvent having an action on resin or resinous matters, and not being soluble in water, to every cwt. of the raw material to be operated upon. The bath is heated by steam or fire until it boils, and it is kept at that temperature for six hours with continuous agitation, until on removing a small portion of the material from the bath and applying it to a bleaching agent, such as the ordinary chloride of lime or chlorine water, it is found capable of being readily bleached; this is what Dr. Cattell calls the first process.

The wood thus so far treated is then removed from the bath, and thoroughly washed with hot or cold water, and it is to be again boiled with continuous agitation for about four hours in a bath consisting of either of the earthy or of the alkaline sulphides, such as the sulphide of lime or the sulphide of soda, in the following proportions, namely, for every cwt. of woody fiber, about seven lbs. of quicklime and seven lbs. of flour of sulphur, or about six lbs. of caustic soda and five lbs. of sulphur, or about ten lbs. of soda ash and five lbs. of sulphur. The sulphide of lime is prepared by slaking the lime, and then intimately mixing the flour of sulphur with it; the requisite quantity of water being then added, the whole is boiled for about an hour; any insoluble matter in it is allowed to subside, the clear liquid alone being used. The sulphide of soda is prepared by mixing either the caustic or the carbonate of soda, or the soda ash and the sulphur together, and then fusing them at a gentle heat with stirring, and a solution is made by boiling either of those products with water. After treating the material as above in the sulphide bath, the liquor is drawn off and the material is drained without exposure to the air, and subjected to the action of sulphurous acid, either in solution or by passing the gas itself into the bath, or exposing it in a chamber to the action of sulphurous acid gas obtained by the burning of sulphur, until the alkaline earths or alkalis are converted into hyposulphites, when the material is thoroughly washed, and is converted into pulp in the ordinary way; this Dr. Cattell terms the second process.

For the purpose of producing pulp for the manufacture of paper, it is possible, by increasing the relative strength of the baths of the sulphides, and likewise the duration of their application, to dispense altogether with the first process, but the result is the production of a pulp of a quality very much inferior to what is produced when the first process is also applied; it is also possible, by increasing the chemical substances of which first baths are composed, and also by increasing the duration of the boiling in that first process, to dispense altogether with the second process, but again in this case the result is the production of a pulp equally defective in some of the qualities essential to the production of a pulp capable of producing paper of really what may be considered a high quality.

Although in the first process borate or bi-borate of soda, potash, or ammonia, and the phosphates of soda, potash, or ammonia, are named as the salts which it is preferred to employ, yet these salts may be used in any proportions with more or less effect, a solution of tungstate, or silicate, or aluminate, or carbonate, or a mixture of one or more of these salts of the alkalis, with analogous chemical reactions, may be employed in making the bath, although the bi-borate of soda is much preferred. In woods in which there is an entire absence of resinous matters, the baths of the salts of the alkalis may be made without the addition of the volatile hydrocarbon or other resinous solvent. The quantity of water in making the baths will vary in some respects with the materials which may be under operation, but in all cases the quantity of water should be such as to fairly cover and keep the materials submerged during their treatment; the vessels employed in making the bath may be either open or closed, but the latter is preferred.

By the foregoing process or processes, a truly good paper may be made, but the material or pulp may be further improved by what Dr. Cattell calls his fourth process, and which he has found of great value when applied to paper-pulp made especially from wood, and which may be described as follows, namely, in submitting the material after the first or second process, or after the application of either of these processes, to a clear solution of a hypochlorite or of chlorine, applied while the material is in the beating or pulping engine, then washing the material in water, and further submitting it to a solution of a sulphide or bi-sulphite, or a hyposulphite of the alkalis, or of the alkaline earths, and these processes when necessary are extended or repeated. The processes have been protected by a patent.—*Mechanics' Magazine*.

—A contract has been let for the construction of one hundred and eighteen miles of the Atlantic and Erie Railway, ultimately intended to connect the Baltimore and Ohio Railway with the lake at Toledo. The section to be built first extends through Perry, Licking, Morrow, and part of Crawford counties, leaving the remaining portion towards Toledo unprovided for as yet. The line contracted to be built passes through the "Great Vein" coal basin, a few miles east of Straitsville, and will thus, when completed to Toledo, give that city the communication with the coal fields of which so much has been said.

—The Abingdon *Virginian* states that the capital stock of the "Saltville and Coal Mine Railroad Company" has been subscribed, and that the Company will be organized in a few weeks. A survey of the road will be commenced by the first of June. It is to run from Tazewell county to Saltville, where it will unite with the branch of the Virginia and Tennessee road.

—The Central Pacific Railroad Company have purchased the California Pacific Railroad, and will take possession next month. It is rumored in San Francisco that the Union and Central Pacific Railroads will also consolidate.

—At the annual election of the Milwaukee and St. Paul Railway Company, held in Milwaukee June 4, 1870, Messrs. Levi P. Morton, James G. Garner, Isaac Sherman and Frederic De Billier were chosen directors for the three years ensuing.

—The coal fields of California yield annually \$1,000,000, the quicksilver mines \$1,500,000, and the precious metal \$23,000,000.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
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The New Railroad Combinations around Cincinnati.

For a long time, all of New York capital and interests neglected and seemed apparently to despise Cincinnati and the Ohio valley. For half a century nearly, Western New York was growing up, and then Northern Ohio and Michigan. In that time, New York capital flowed continually to the Lakes. It made canals and railroads, built towns and factories; and kept on streaming to the North-west. But, rapid as was this growth, and great as was its contributions to the prosperity of New York, there were certain limitations to it which are now being evidently felt. New York canals no longer pour in new commerce; the lands of Michigan and Wisconsin are not as profitable as those of the Ohio valley. Ohio is beginning to work her mines, build factories, and supply many of those industrial products which New York formerly did; and in fine, it is becoming very evident, that the center of inland commerce is not on the Lakes, but in the Ohio valley. Any one who takes a map and looks into geography and statistics will see that the Ohio valley and the South-west are the great producing regions; that the river valleys will be as populous as was Egypt; and the production of grain, animals, iron, coal and all the great products used in society, will surpass anything in this country, or, perhaps, anything the world has ever seen. Some place in the Ohio valley, (of which Cincinnati

can be the only one); some place in the South-west, (of which Memphis will probably be the one), must be the great centers of a commerce unsurpassed in any portion of the globe. They will concentrate the trade of ten States (except the lake portion of Ohio, Indiana and Illinois), which include 500,000 square miles, and will soon contain 50,000,000 of people, and produce more than the entire United States does now. Was this vast region to be overlooked in the calculation of New York? For half a century, it was, practically, because as we have said, New York was engaged in building up her Western territory, and in aiding the commerce and towns of the Lakes. But, there has come a time, when two great facts loom up to the eyes of New York traders and speculators. It is evident that the Lake Basin no longer increases the trade of New York at the same rapid rate it did. In the next place, it is equally evident, that the Ohio valley and the Mississippi valley are beginning a new career of improvement. The slave question is over. All agitation, except that of industry, is ended. Industry comes up as the great idea of society. Towns are being rapidly built; mines are being opened. Cincinnati already feels the force of the great industrial wave. Is New York to forget and forgo all this? Certainly not, and her capitalists are now just getting their eyes open. The consequence is, that, instead of forgetting, they now seem to be rushing towards Cincinnati, in an impetuous competition. Let us now notice a little what is, and has been going on:

1st. The first attempt to reach Cincinnati on a direct line from the Atlantic was that of Baltimore; and to some extent, Baltimore still has the advantage in having the shortest line between the Ohio and tide water.

2nd. But, Virginia has a little the advantage in having the shortest line, not to tide water, but to the *Atlantic Ocean*. Hence, she early began the Kanawha Canal by the head of James River, which is still urged, and which *ought* to be made. Then the Virginia Central was undertaken with the same view. That work, as well as the "Covington & Ohio" has been reorganized under the name of the *Chesapeake & Ohio*; and is now being pushed forward with great vigor. It will be completed to the Ohio River, quite as soon as the new eastern enterprises can be completed. It is absolutely necessary to itself and to Cincinnati, that the Chesapeake & Ohio should be completed from the Ohio River to Cincinnati, and connect with the western roads, and when it does, no road will surpass it in advantages.

3rd. The next (and so far the most successful) of the eastern roads, in attempting a connection with Cincinnati and the Ohio valley, was the *Pennsylvania road*. For a long time, the able and energetic managers of the Pennsylvania Central were occupied in perfecting their own road, and in buying up

and basing their Pennsylvania connections. This done, they continued their road through Ohio to Chicago, which made a great through route to the North-west. In the mean time, what is called the *Pittsburg & Columbus line*, was built and operated separately, but in connection with the Pennsylvania road. Finally, the Pennsylvania Company turned its eyes to the Ohio valley. It leased or bought the Pittsburg road, has recently leased the Little Miami, and is building (or those in its interest are) a bridge over the Ohio at Cincinnati. It has bought the Wilmington & Zanesville road, and is now making the cut-off, from the Pittsburg road at Dresden to Zanesville. This will be but a short distance, and will probably make the distance from Pittsburg to Cincinnati by Zanesville, as near as by Columbus. Thus the Pennsylvania Company will have a great double route through Ohio to Cincinnati, and over the bridge, to connect by the *shortest line with Memphis*. It is thus evident, that the Pennsylvania Company has taken the shortest and best methods to connect themselves with the whole Ohio valley and the South-west.

4th. In the meanwhile, the *Atlantic & Great Western* was built by an English Company on a grand scale—a great double track road, to connect with the Erie road to New York on one side, and with St. Louis through Cincinnati on the other. But there was a link missing from Dayton to Cincinnati, and the question was, whether a new road should be made, or some arrangement made with the *Cincinnati, Hamilton & Dayton line*. The latter was preferred, and a third rail laid, and the right of way obtained. Thus there was at once raised up a great competing line with the Pennsylvania; and an absolute bar to the New York Central, in regard to competition for the trade of the Ohio valley and the South-west. And here arose a question in the public mind, whether the *New York Central* would quietly accept being cut off from the Ohio valley, or would attempt to compete for it? Apparently, the New York Central was quiescent, but we never believed it could be so. For it would be simply to concede that the *New York Central* was not one of the great trunk lines of the United States. At length, however, the public are startled with the result.

5th. It is announced, that the *New York Central*, the *Lake Shore*, the *Sandusky*, and the *Cincinnati & Indianapolis*, and the *Cleveland & Columbus* roads have combined to make the "Short Line" from Dayton to Cincinnati! Thus, after so much opposition, so much rivalry and jeering, the "Short Line" is to be made, and there is to be a new and great trunk line into Cincinnati. We have maintained both the policy, and certainty of this road from the beginning, and can only hope that its proprietors and managers will really make it a short and straight line into the center of Cincinnati.

Important Railroad Meeting.

THE DAYTON & CINCINNATI SHORT LINE TO BE BUILT IMMEDIATELY.

The N. Y. Central, Lake Shore and Other Strong Roads take it in Charge.

SANDUSKY, O., July 5.

Meetings of the officers and representatives of the New York Central, Lake Shore, Cleveland, Columbus, Cincinnati & Indianapolis, Cincinnati, Sandusky & Cleveland, and the Indianapolis, Cincinnati & Lafayette Railroads, were held here on Saturday and to-day, to perfect arrangements for the immediate construction of a Short Line of Railroad from Dayton to Cincinnati. The company was fully organized and the following directors elected: Hon. Horace F. Clark, of New York, President of the L. S. & M. S. R. R. Co., and a Director of the N. Y. C. & H. R. R. R.; Jason Marvin, a Director in the N. Y. & H. R. R. R., of Saratoga, N. Y.; Amasa Stone, Jr., a Director in the L. S. & M. S. and C., C. & I. R. Rs; Selah Chamberlain, of Cleveland, Director in the C., C. & C. and I. R. R.; Jacob W. Pierce, of Boston; Hon. Rush R. Sloan, President of the C., S. & C. R. R.; H. C. Lord, President of the I., C. & L. R. R., and R. M. Shoemaker and J. M. Kinney, of Cincinnati. R. M. Shoemaker was subsequently elected President of the new corporation.

Arrangements were also concluded which secure the immediate completion of a railroad between Springfield and Columbus *via* London.

The above is a special despatch to the Cincinnati *Gazette*, and from the character of the parties engaged in the meeting, it is evident that they "mean something." Still, it is a very curiously mixed affair in some respects. In the first place, Jacob W. Pierce and Rush R. Sloan, of the Cincinnati, Sandusky & Cleveland road, but a few days ago concluded a contract with the magnates of the N. Y. Central to do their Cincinnati business over their road via Clyde, thus taking it away from Selah Chamberlain, of the C., C. & I. R. R. Mr. Sloan evidently expecting to do the business over the C., H. & D. road under their present contract. This, however, will not be permitted by the Erie, who have a sort of prior claim on the track of the C., H. & D. It is understood now that they will, for the present, do the business over their line from Springfield via Xenia and the Little Miami road. The N. Y. Central business has heretofore been done over the C., C. & I. to Columbus and the Little Miami; the latter road has recently passed into the control of the Pennsylvania Central, and hence supposed to be inimicable to the interests of the C., C. & I. as well as the New York Central. We can not see what is the advantage gained by the N. Y. Central, in sending the business *via* Clyde, on the C., S. & C. and the L. M. roads, over the old route via Cleveland, Columbus and the Little Miami road. Are they not still at the mercy of the Pennsylvania road, just the same?

But why this harmony between the C., S. & C. and the Little Miami for business from Clyde and Springfield to Cincinnati, and the apparent "bad blood" in constructing the parallel road from London to Columbus? the completion of which we understand is assured by this arrangement. This would be square competition to the Little Miami! Possibly in their modesty, they propose to use the track of the Little Miami for their construction trains! This surpasses Barnum's "happy family."

Besides, what course will the Hon. Rush R. Sloan, President of the C., S. & C. R. R. and his company pursue in reference to his suit now pending before our courts, for the recovery of the principal and interest of the bonds of the Dayton Short Line road, held by them, and agreed to be surrendered as part of the purchase price of the right of way and other interests of that corporation, between Dayton and Sharon, when the C., S. & C. Company was operating under the title of the Dayton & Eastern Railroad, and under which name they issued a large stock and bond list, some of which is still in circulation; they actually did a large amount of work on the route, all which was abandoned on the completion of their contract with the C., H. & D., and they then turned around and sued for the cash paid and the value of the bonds and the accumulated interest. They are now going to *build the road*. The managers of the C., S. & C. evidently intend to be on the safe side of the game, for they only play "heads I win, tails you lose!"

But, then, it is "an ill wind that blows nobody any good," and we have full faith that if our friend R. M. Shoemaker, takes the contract to make the line, it will not only be built in an inconceivable short time, but he will "make something handsome" out of it. So mote it be!

Land Grant "Swindles."

The Kalamazoo *Gazette*, after indulging in a very severe attack on the "Protective Tariff Swindle," and the "Internal Tax System," (if the Government "machine" would only run itself like a sled going down hill, how nice it would be to get along without any taxes whatever,) gets off the following in support of "Congressional Grants" for railroad construction.

"Some Democratic papers are making fools of themselves, by classing 'Land Grant Aids' with the above mentioned swindles.

"The 'Land Grants' are generally an incalculable blessing to the country. They open up sections of wilderness wastes, which have been unoccupied for ages, and would have lain for many ages longer, had not the 'Grants' been made."

Brother LOMAX's "head is level" on the question of "Land Grants" and their influence on the development of the country.

Death of Mr. A. H. Lewis, late Vice President of the O. & M. Railroad.

We were sadly pained to learn of the death of ALEXANDER H. LEWIS, to whom the Ohio & Mississippi Railroad is so greatly indebted for its present splendid condition and popularity as a public thoroughfare. Mr. Lewis died on Sunday July 3rd, at 11½ o'clock, P. M. aged forty eight years. It will thus be seen that he was cut off in the very prime of life and vigor of manhood. The *Commercial* pays the following very just tribute to his memory:

"In the seemingly untimely, though not of late unexpected demise of ALEX. H. LEWIS our community has suffered the loss of a useful member, and those who knew the man, a kind friend and a true gentleman. None who knew him well, not to say intimately, could fail to recognize in him extraordinary qualities of self-command under all circumstances, the mildness and kindness of an even temper, and a genial disposition. Those associated with him in business knew him as an indefatigable and untiring worker, always true as steel to interests intrusted to him, and exacting, but none beyond the point of justice, in his demands upon those under him. Mr. Lewis was born in Edwards County, Illinois, in 1822, and while yet a tender lad of eight years became a resident of this city. We believe he first worked, as an errand boy, in JOHN SHILLITO & Co's dry goods store East Fourth street. Then he worked in the steamboat office of W. D. JONES. He was next employed in THOMAS EMERY's office, and at last, when yet only seventeen years of age, with his brother, H. H. LEWIS, in the produce business on Front street. Then, for a time, he ran in the New Orleans trade, as steamboat clerk, and from that time forward was employed in railroad business and enterprise. He commenced, in the business that finally killed him, as a conductor on the Little Miami Railroad, and at length became Assistant Superintendent of that road. For eight or ten years past he had been closely identified with the Ohio & Mississippi Railroad, as Superintendent of the Eastern Division, General Superintendent, and finally Vice President, which last named office he occupied at the time of his death. Quick consumption, brought on by exposure and neglect of self in the interests of others, caused his death. Leaves a Wife, Daughter of WILLIAM WISWELL, and four children, one Daughter aged 19 years, Sons aged 15, 13 and 11 years."

NEW RAILROAD—There were filed at Columbus, July 5th, the following certificates of incorporation:

The Lake Shore, Louisville & Southern Railway Co. Road to commence at Huntsville, in Logan county, runs thence through Champaign, Shelby, Miami, Montgomery and Preble counties, striking the Indiana State line at or near College Corners, Butler county. Capital stock, \$1,000,000. Shares, \$50 each. Incorporators, F. A. Soule, D. C. Howard, M. A. De Tough, Stephen Johnson and Alexander G. Conover.

AIR LINE RAILROAD.—The Jackson *Patriot* of June 29 says the iron is laid eight miles west of Jackson and twenty east of Three Rivers—that the gap will be closed in October or November.

Cincinnati, Hamilton & Dayton Railroad.**RETIRING OF MR. L'HOMMEDIEU AS PRESIDENT.**

A special meeting of the Board of Directors of the Cincinnati, Hamilton & Dayton Railroad Company was held on Monday, July 4th, the day on which the resignation of Mr. L'Homedieu was to take effect.

The Board having been called to order, and the heads of the various departments present, Mr. L'Homedieu, in the chair for the last time, read to them the following farewell, after which he conducted his successor, D. McLaren, Esq., to his vacated post:

PRESIDENT'S OFFICE, C. H. & D. R. R. Co.,
CINCINNATI, July 4, 1870.

*Gentlemen of the Board of Directors and
Heads of Departments of the C. H. & D.
R. R. Co.:*

I have called you together this morning for the purpose of bidding good bye to you on this last day of my Presidency, and on the eve of my departure for Europe.

It is both a pleasant and painful occasion to me. Painful to dissolve my intimate connection with you, and to surrender to the keeping of others the trust long ago committed to me, and to fulfill which has cost me years of labor and anxious thought; but pleasant for the recollection of the many years we have labored together to achieve the same objects, working in full harmony, "shoulder to shoulder," and the final success that has crowned our efforts.

Pleasant to know that the Cincinnati, Hamilton & Dayton road has conferred benefits upon its stockholders, upon the cities of Cincinnati, Hamilton and Dayton, in honor of which it was named, and upon all the intervening country, which it has made more productive and beautiful than the valleys of the Napa and San Jose, and filled with a population prosperous, refined, intelligent and happy, requiring a train of cars to be run almost every hour in the day, where in the beginning of our enterprise a stage coach sufficed for all its wants.

Pleasant to know that so many of our officers and employees, who were engaged with me twenty years ago, have proven efficient and faithful to their trusts, and have earned and are receiving the confidence of the stockholders and community at large. Pleasant to know that their integrity and experience has fitted them for higher positions than they at first occupied; and pleasant to realize that we have stockholders disposed to reward long and faithful services by the selection of those who have grown up with the road for its future management.

I congratulate you on your selection of Mr. D. McLaren as my successor in the Presidency. He is a man of great railroad experience and ability, whose judgment in selecting and directing men has been fully demonstrated by the manner in which the various duties of his several departments have ever been performed. To him, and to Mr. F. H. Short, our Secretary and Treasurer, as well as to you all, am I largely indebted for whatever success has been attained by me in building up the business and prosperity of our road. They have earned the positions they now occupy. That their future will be as fully rewarded as their past, I have not a doubt.

Very truly, yours,

S. S. L'HOMMEDIEU, President.

HANDSOME TESTIMONIAL.

The employees of the Cincinnati, Hamilton and Dayton, Dayton and Michigan and Cin-

cinnati, Richmond and Chicago Railroads made a Fourth of July present, to their retiring President, S. S. L'Homedieu, of a handsome gold hunting-case Nardin watch, with a fine, heavy neck chain, a beautiful diamond pin, a pair of sleeve buttons, with the monogram "L'H" set with small diamonds. The watch bears the following inscription in the front case: "S. S. L'Homedieu, from the employees of C. H. & D., D. & M. and C. R. & C. Railroads. July 4, 1870."

Accompanying the above presents was a sheet of parchment in the form of a letter, as follows:

"S. S. L'HOMMEDIEU:

"We the undersigned, desiring to show our appreciation of you as an officer and gentleman, upon your retiring from the Presidency of the Cincinnati, Hamilton and Dayton, Dayton and Michigan, and Cincinnati, Richmond and Chicago Railroads, would respectfully present you with these tokens of our regard, viz.: Watch and chain, pair of sleeve-buttons, and breastpin, hoping that they may in the future be a remembrance of by-gone days.

"CINCINNATI, July 4, 1870."

Then follow the names of the subscribers, 152 in all.

In addition to the above, Mr. L'Homedieu was the recipient of a handsome 18-carat gold tobacco box, finely engraved and finished, a personal gift from D. McLaren. It is inscribed as follows: "S. S. L'Homedieu, from D. McLaren, July 4, 1870."

The presentations of the above were made by Judge Matthews at noon, in presence of the Board of Directors and some fifty of the employees. Mr. L'Homedieu responded in fitting words.

PITTSBURG AND CONNELLSVILLE R. R.—The *Pittsburg Chronicle* says that great activity is now displayed in the region of country to be developed by the Pittsburg and Connelleville railroad. A surprising number of branch lines are not only projected, but surveyed and contracted for, and some of them will be finished almost as soon as the main line is opened for travel. Branches to Somerset, Salisbury, Bedford, the Uniontown extension, and Mt. Pleasant Branch are the most notable. The Somerset branch, from Mineral Point, distance about ten miles, was surveyed last spring, the cost will be about \$140,000, and the contracts for building the same are already made. The Mount Pleasant branch leaves the line of the road a short distance west of Connelleville, at Bradford, and in light grades and easy curves it passes for ten miles through one of the richest and most beautiful regions in Pennsylvania. Coal of the best quality, iron ore and limestone found everywhere. The town of Confluence, thirty miles above Connelleville, has taken a fine start this spring, and the railroad company have appropriated fifty thousand dollars for the erection of work shops at this place. An eight foot vein of gas coal has been opened between Indian Creek and the Falls.

—The Pine Bluff (Ark.) *Republican* says that a full corps of engineers has arrived at Pine Bluff, for the purpose of making an immediate survey of the Little Rock, Pine Bluff and New Orleans Railroad, commencing at that place and going toward the Mississippi River. The Pine Bluff and Devall's Bluff road will be surveyed in a short time also.

The Rockport Railroad.**ADDRESS OF PROMINENT CITIZENS.**

The following address has been issued by many prominent citizens and firms of this city with reference to the Rockport Railroad, to run from Rockport on the Ohio river, to the Ohio and Mississippi Railroad. The project, it is well known, is an important one, and the address merits the careful consideration of our business men and capitalists:

The undersigned, citizens of Cincinnati, have examined this enterprise and subscribed stock in it, and being satisfied of its value and interest to our city, and that the terms and conditions on which the ownership and control of the road are offered to our citizens are both fair and reasonable, placing it safely and completely in the control of Cincinnati, we regard it as the duty and interest of our citizens to come forward with their subscriptions and make it a complete success. Believing it an enterprise of merit, promising much profit and gain to Cincinnati in commerce and trade, we think it deserves and should receive the hearty and prompt approval of our citizens. In commending it to your favorable consideration, and asking your aid and co-operation, we call your attention to the following facts in relation to the subject:

The benefits of this proposed road to Cincinnati are important, and worthy of earnest consideration. The country it penetrates (South-western Indiana, Western Kentucky and Central Tennessee) is not now reached directly by Cincinnati trade and commerce. Indeed we can not even compete on equal terms with some other cities for the trade of this country; but with this road can reach it more directly and conveniently than any other city.

This route furnishes a second line of rail to Nashville (if indeed we can claim to have one route there) and the southwest, and will establish what we greatly need in that direction—healthy competition in transportation. Besides, the local trade on the entire line, from the Ohio & Mississippi Railway to Nashville, is desirable, and can not fail to be a source of revenue and profit to all classes of dealers in Cincinnati.

The Southern connections established by this line are Owensboro, Greenville, Paducah, Nashville, Memphis, and in a word, all the South-west.

The Indiana friends of the Rockport road now have \$235,000 in tax and subscription on the line of the road. This amount they claim to be able to increase to \$800,000, with our influence and co-operation. They have obtained the right of way on a portion of the line, and are industriously at work to secure this on the whole line, and to increase their donations. All these they propose to donate to Cincinnati, if we subscribe \$300,000 of stock, that being the amount deemed necessary, in addition to their donations, to prepare the road bed for the iron.

The line from Nashville to the Ohio river will be completed this or early next year. Now the question is, shall this line be extended to a Cincinnati connection, or shall the trade and travel coming from the South by this line, on reaching the Ohio river, go up or down the river to other competing cities, or shall it have an opportunity and strong inducement to come to Cincinnati by having this line extended to the Ohio & Mississippi railroad, less than sixty miles?

The ownership and control of the road be-

comes the property of Cincinnati stockholders on the subscription of \$300,000.

This amount of stock secures to our citizens the charter, right of way, and carries with it all the donations on the line. With our aid these donations can be greatly increased. The people of Indiana make their subscription donations, while ours will be stock, thus securing to us all we can ask as to the ownership and control of the road.

But what is far better than the ownership of a railroad, we can, by this line, reasonably expect to control the trade and commerce of a wide and wealthy district of the country from which we now derive but little trade.

The officers of the road have certainly manifested great energy and industry in their work, and have sought aid of Cincinnati, and of Cincinnati alone.

In this they have represented the feeling and sympathy there is between this country and Cincinnati, and the disposition of the people there to deal here if they only have an opportunity.

It is now for us to say whether they shall have this opportunity or not.

This enterprise makes a strong appeal to all our leading citizens, real estate owners, jobbers, manufacturers, and especially of the tobacco interest.

For years our people have talked and written of the value of the Southern trade, and of the importance of additional railroads South. Here is an enterprise offered us on favorable terms, and for a small outlay, that is a South-western route, short, direct and cheap. It is not intended for a substitute for any other of our proposed lines, but is, in itself, a valuable Southern route.

We ask your hearty and prompt co-operation in this enterprise. It has been before the Chamber of Commerce and Board of Trade, and received their indorsement. Now the citizens of Cincinnati are asked to take individual stock to the amount of \$300,000 and thus secure the same amount of donations, with all franchises of this proposed road. We hold there should not be a moment's delay.

R M Bishop & Co, Wm Glenn & Sons, M Kleiner & Bro., J L Haven & Co, John Shillito, Oliver Perin, R R Springer, Jos Kinsey, Jos Longworth, McAlpin, Polk & Heberd, C Schultz, Larz Anderson, C H Wolff & Co, W W Scarborough, J F Torrence, W Hooper, Shaw, Barbour & Co, Josiah Kirby, M Loth, White, Corbin, Bouve & Co, Bohm, Mack & Co, W H Harrison, Freiburg & Workum, T R Biggs, Pritchard, Alter & Co, Louis Stix & Co, L H Sargent, Chas Bodman & Co, M Greenwood, Casey, Wayne & Co, P H Clayton & Co, Howell Cano and Co, Babman Bros. & Co, Jason Evans, Lane & Bodley, Henry Lewis, and others.

EXPORTS OF TEXAS CATTLE.—The *Lawrence Journal*—having its opinion on information obtained from drovers and other sources deemed reliable—estimates the export of cattle this season by the Kansas Pacific road to reach, if it does not exceed 200,000 head. They now average thirty cars (600 head) per day, or nearly 4,000 per week. Over the Missouri River, Ft. Scott and Gulf road 50,000 cattle will be shipped, requiring 125 trains of 18 cars (400 head to the train), and netting, at \$40 per car from Baxter to Kansas City, \$90,000, which is a pretty good showing for the first years' earnings of the road in the cattle business. In addition to the above, 50,000 will be driven north and sold to supply Western posts.

Railway Legislation.

The time seems to be coming when to have anything to do with railway matters will be as discreditable as selling horses, and we don't know but the horse jockey may resent being put upon the same level as the railway director or manager. We have pointed out at different times the numerous ways in which the railway manager becomes opposed to the public good, the most flagrant instances of today being the "watering of stock" and the consequent unnecessary high rates for public travel, and the control of State legislation by improper influences for selfish purposes of monopoly. The case of the Boston, Hartford and Erie Railway, which has been before the Legislature of Massachusetts for the last few years, shows most conclusively how dangerous a large railway corporation may become to the commonwealth, and how inimical to public morality it is likely to be when its leading men or managers do not hesitate to make ill use of the power which their position gives them. This corporation came before the legislature something over a year since, a petitioner for State aid to build and equip its road to the Hudson River. The State granted aid sufficient, according to the showing of the directors of the company, to do this work, and now it is again a petitioner for aid, after it is proved that the leading men in the company took the sums granted by the State, and lost the larger part by stock speculations. These brazen gentlemen, after the evidence of their rascality is fully proved, coolly walk into the State House and demand that they shall have another three and a half millions of dollars entrusted to their tender mercies. They find that some legislators, old fashioned enough to be moderately honest, object to a second depletion of the State Treasury, and straightway the entire lobby force of the whole State is brought to bear its influence upon the Legislature. Now this lobby, composed of ministers, doctors, ex-congressmen, judges, custom house officials, and others, do not work for the mere love of it; they work for pay, for money, and unless they can get pay in money, they will not do the disreputable and dirty work in which they have been and are engaged. Where does this money come from to pay this crew of harpies? The company is bankrupt; it can not borrow a single dollar. The leading officers and directors plead that they are in a like condition, having been ruined by the sacrifices they have made to put the road through. According to all evidence, no one who petitions has any available means, and the only logical deduction is that the pay for the service of the lobby for instructing the members of the Legislature as to their duties in this matter, is to come from the very money that the Legislature shall vote into the pockets of the managers, under the pretext that it is "State aid" to the railway enterprise. The lobby is omnipresent and active in the halls of legislation, in the committee rooms, in the hotels and boarding houses of the members, while every threadbare button-hole has a pleading finger in it, and every ear is tempted by the soft seductions of men whose business leads them to detect and work upon the weak points in the character of the men whose votes they seek to control. Now every one knows that these are facts, and they know by repeated instances that the Legislature has been controlled by the influence of the lobby into doing things at once very foolish and wrong; and when all this is known and understood, what reliance can be placed by the

public upon legislation in railway matters? This whole system is wrong from the beginning. There is very little necessity for special railway legislation, in fact there is none. There is no need for "State aid" for any railway enterprise, in New England at least. While the laws chartering and regulating railways should be general, the enforcement of the laws and the general supervision of the whole railway system should be placed in the hands of the Board of Railway Commissioners, and that board should be endowed with ample powers to repress the monopolizing tendencies of the larger railway companies, and to protect the public from the oppression that every railway company with five or ten millions capital can now commit with impunity. The hearings before the legislative Railway Committee are mere farces; the results are always dictated by the agents of the larger companies interested, and these agents very coolly tell the Committee what they will agree to and what they will not, as though the Committee were their creatures, instead of being composed of a number of independent men especially chosen to look after the interest of the public. The present system of railway legislation is a confessed failure as to good practical results; it is costly to extravagance, more than half the time of the sessions being taken up with it; it is oppressive to the public, for the reason that it tends to perpetuate and extend the monopolizing power of the companies, rather than to extend the easy and possible benefits of railway facilities to the public at fair prices. In view of these facts,—and we have watched railway legislation for the past fifteen years quite carefully, and the conviction has grown upon us out of the attention which we have given the subject,—we are convinced that a radical change should be made; that our railways should be chartered and regulated by general laws, and that the doings of the different companies should be controlled by a board of Commissioners appointed by the Executive of the State, and as independent of the control of political parties and the Legislature, as are the Justices of the Supreme Judicial Court.

JACKSONVILLE, PENSACOLA AND MOBILE R. R.—The earnings for the six months ending March 31st last, were \$245,666 85.

Work is progressing towards Mobile to which point it is expected track will be laid by next summer. When the Apalachicola River is reached, and it is contemplated to complete to that point within the coming three months, the immense traffic from Northern Florida and Southern Georgia will find its way to a market over this road, and the earnings will be augmented to an extent that can be estimated only by those who are acquainted with the large product of cotton and lumber of that region.

KANSAS PACIFIC RAILROAD.—The May earnings amounted to \$341,000—an increase of \$41,000 over any previous month in its history. Should the present rate of increase be maintained—and there is every assurance that it will be, and even be increased—the opening of the road to Denver next September, will show a rate of earnings even larger than President Perry anticipated in his recent report—\$5,000,000 per year. The shipments of stock from Abilene and vicinity now average 30 car loads per day, which will steadily increase till the height of the stock season in September.—*Chicago Railway Review.*

Choctaw and Chickasaw and 35th Parallel Railway.

We find in the *Van Buren Press*, a letter from Mr. J. M. Pomeroy, in reference to the above enterprise, from which we make some extracts in which are clearly defined the purposes and aims of this company. The company is formed by the union of chartered companies of the Choctaw and Chickasaw nations and the State of Arkansas.

The new company proposes to build a road from Little Rock westward, along the rich valley of the Fourche le Fevre, and substantially on the line of the 35th parallel of latitude, to the *Choctaw line*. Upon obvious principles, no company could, by virtue of its creation under the law of Arkansas, obtain corporate rights in the Choctaw Nation—the incorporation of a company under the authority of that Nation, and the practical consolidation of the two for purposes of business, presenting the only convenient method of accomplishing the object.

The Choctaw and Chickasaw company was incorporated by special act of general council, approved April 8th, 1870, with a directory composed as follows: Principal Chief Allen Wright, Robert M. Jones, J. McCurtain, James Thompson, Basil L. Leflore, and George Durant, of the Choctaw Nation; Joseph D. Harris, and George D. James, of the Chickasaw Nation; and Dudley E. Jones, S. H. Tucker, D. H. Barnes, S. L. Griffith, John Stoddard, James M. Pomeroy, and Henry S. Brooks, of Arkansas; all of which gentlemen, except Messrs Leflore and R. M. Jones have intimated their acceptance of their office.

The enterprise is *one*; the two companies are one for all purposes of business, their interests being identical; and I may state in corroboration, if any be needed, that Mr. Dudley E. Jones, of Little Rock, is president of both companies.—*Am. R. R. Jour.*

NEW JERSEY WEST LINE RAILROAD.—The inhabitants of the townships on the line of the New Jersey West Line Railway (formerly known as the Passaic Valley and Peapack Railroad) are now in a state of excitement over the action of the Directors in mortgaging their franchises and property for \$3,000,000. A meeting of the citizens of Summit and New Providence was held at Summit to protest against this action of the company and to take measures to enforce the agreement which it was said was originally entered into by the company when the townships were first bonded to aid its construction. This road, like the greater part of the roads now building in New Jersey, was to pass through certain townships upon the agreement of the citizens to issue bonds to raise money to take the company's stock. Liberal subscriptions were obtained; but after the bargain was made the company mortgaged their property for \$3,000,000, giving first mortgage bonds. It is claimed by the townships that, according to the agreement under which they invested in the stock of the road, the township subscriptions were to stand in the nature of a first lien upon the road; and they now demand that the amount of their subscription be taken in the first mortgage bonds instead of in the company's stock. This the company refuses to do, and the citizens threaten to carry the case into the Supreme Court. Mr. John H. Lyon the well known president of the company has resigned, and ex-Senator Anderson has been appointed in his place.

A Square Look back and a Glimpse forward.

While currency bills and bank tinkering are so much discussed in and out of Congress, it is well for the people to review the history of paper money; for banking is of but little interest to the people at large except in its power to flood the country with currency, the use of which becomes arbitrary.

Everybody must take the currency in general use, because nobody has anything else. "You must take the money I get, or no trade—no pay." Going to banks to do business is a matter of choice simply, and probably not more than one in fifty ever has any account or business with any bank. But where is the person that does not have an interest in the currency or circulating medium of the country?

Take the history of State legislation from 1800 to 1860, and it will be found that no question has been more fully discussed than that of banks and currency—the great aim being to guard the people against loss on currency principally, and incidentally on other bank liabilities. We ask, Did ever any State succeed? Old records will show that New England has had its hundred broken banks, besides four or five universal suspensions and a score of very damaging panics.

New York was forced by the people's groans and losses into the Safety Fund system, and even that exploded by reason of bank failures, and the Safety Fund became a broken reed. Then the Security system was adopted, with State stocks, U. S. stocks and mortgages. These banks broke like pipe-stems on the opening of every panic in the money market, and "secured money" was available only at all rates of discount from 10 to 70 per cent.

Michigan tried Real Estate banking, which resulted in wild-cat. Enough said.

Indiana, Illinois and Wisconsin tried the Security system, the product of which was an everlasting crop of "STUMP-TAIL."

We could thus go through the States and show that State banking was always a disastrous failure, and the losses to the people by broken bank notes, premium on exchange, and discount on currency, are moderately estimated at one thousand millions.

One of the very few benefits resulting from the war is an improvement in the currency. The word *DISCOUNT*, as applied to bank notes, once so universal, is now obsolete. No more do we hear the peddlers of Bank Note Reporters cry, "Another broken bank!" "Ten new broken banks!" "A full list of broken banks!" &c.

Sixteen hundred banks all PAID! Great is the revolution, reformation, improvement, or call it what you please.

If these facts are not kept before the people, so that they may hold their representatives at Washington in check, there will be more currency and bank troubles. The present system is the best that ever has existed in this country. It is not, however, beyond the reach of casualty, and if the currency and bank questions are to become political footballs, then we are sure to have trouble with them.—*Thompson's Bank Note Rep.*

G. R. & I. R. R.—The Big Rapids Independent of 23d June, says:

"The track on the big Rapids Division today, was laid within less than two miles of Paris. The locomotive crossed to the north side of the Muskegon on Friday last."

Steel Rails by a New Process of Manufacture.

[From the N. Y. Evening Post]

We understand that a series of experiments have, within the last eight months, been tried at Tamaqua and Ringgold, Pa., whereby ordinary pig iron has been converted into steel by mixing a certain kind of ore with a metal in an ordinary puddling furnace, and the product has been put into rails which have stood the test that is usually applied to Bessemer steel rails, and railroad men in that region have been greatly surprised at the result.

It appears that this ore has thus far been found only in the county of York, Pa., and the entire body of it (estimated by geologists at 17,000,000 tons) has been purchased by the York Co. Iron Co. A friend who lately visited the town was astonished to find an extensive rolling mill and furnaces building on grounds purchased by the above named Co., and to learn from gentlemen of experience in the iron business of the wonderful success which has attended the working of this ore by a process patented by Jacob Jameson, of Philadelphia. By the middle or last of June it is confidently believed that this mill will be able to turn out 200 tons of A No. 1 steel rails per week, as a commencement, with a capacity of increasing the amount to 500 tons per week. It seems it is not an experiment with the parties concerned in these works, for, under the supervision of a portion of the Board of Directors, experiments were tried at the Abbott Rolling Mills, Baltimore; Camb. Iron Works, Johnstown, Pa.; Lochiel Works, Harrisburgh; all with complete success in making steel rails, which have been in use for months past. The following certificate was received from Master of Trans. of B. & O. R. R., where four rails were laid down, made at Abbott Rolling Mill last July:

"SIR: In answer to your letter of 21st instant, I have to inform you that the steel-capped rails made at the Abbott Works were placed in the track just south of Camden station; that three of them have worn well; that the cap came off one of them, and it had to be taken out of the track; that they have lasted twice as long as iron rails already, and that I can not say how much longer they may last.

JOHN L. WILSON,

"Master of Transportation."

"BALTIMORE, April 22, 1870."

Coleman, Rhum & Co., of Pittsburg, have been using the ore for the past eight months in making steel for the manufacture of agricultural implements, and have submitted it to a test by a machine adapted to such purposes, and owned by Penn. Central R. R. Co., whereby its tensile strength reached the marvelous standard of 112,500 lbs. to the inch.

At Coatesville, on the Pennsylvania Railroad, Steel & Worth roll boiler plate and wrought iron. They supply the Baldwin Locomotive Works, Philadelphia, with all of the boiler plate used by that firm; and Morris & Tasker take all the wrought iron manufactured by them for their wrought iron tubes. Steel & Worth have some furnaces in constant operation, and they make the Union Patent Stop Washer. There are 25,000 of these turned out every day. This article has been employed to fasten the nuts on the fish joints for the prevention of unscrewing or receding of the nuts. About \$8,000 are paid out weekly for wages and expenses.

HANNIBAL & ST. JOSEPH R. R. COMPANY—At a meeting of the Board of Directors of the Hannibal and St. Joseph Railroad Company, held at Boston, June 29, 1870:

Voted, That whereas the earnings of the road for six months ending July 1st, 1870, are sufficient for the declaration of a dividend, all prior earnings having been applied to the improvement, maintenance and working of the road.

That there be distributed to the owners of Preferred Stock of July 31st, 1870, 7 per cent. upon the amount of said Stock, payable August 15th next, being the amount of preference to which they are entitled for the year 1870, as per the provisions of the Indenture of April 1st, 1863; and that there be paid to the Holders of the Common Stock of Record July 31st, 1870, a Dividend of 3½ per cent. payable August 15th next, for the six months ending July 1st, 1870; and that the earnings of the road for the remaining six months be first applied to pay the further Dividend of 3½ per cent. on said Common Stock, and that the books be closed from the 1st to the 16th day of August, 1870, inclusive.

RAILROAD MEETING AT PIKETON—By a note from Col. Trimble, we learn that the Railroad Meeting held at Piketon last Saturday, was attended by a tolerably full representation of the people of the county, and also by a delegation of the active business men of the wealthy and enterprising city of Portsmouth, two of whom, Judge Searle and Mr. Glover, addressed the meeting. Speeches were also made by Col. Trimble and Hon. J. L. Hughes.

In his brief note, Col. T. does not enter into particulars, but says he will be able to speak of the views and purposes of the Portsmouth delegates on his return home this week. He closes with this encouraging assurance:

"The result of the meeting every one feels will be favorable in a very high degree to the success of our enterprise."

This is good news, and probably indicates that Portsmouth is beginning to look seriously to a connection with Cincinnati through our line, by building a road up the Sciota Valley to Piketon, (a distance of only 24 miles)—*Highland News*.

POINT OF ROCKS RAILROAD—The *Washington Chronicle* says it is stated in a quarter which is, from position, high authority in railway affairs, that it has been determined to bring the Point of Rocks railway into Washington city by next winter. If so, it is to be inferred that the Connellsville road is to be finished by that time, for the two have been regarded in circles of the Baltimore and Ohio railway as twin measures. Such rapid construction would necessitate very energetic steps by the Baltimore and Potomac railway, if it is to be as early in the field for north-western travel as Mr. Garrett.

HOOSAC TUNNEL PROGRESS—A measurement of the Hoosac Tunnel excavations has just been made, showing on the eastern end 31 feet advance in a week, and that the whole length is 7,043. The central shaft, which is in process of sinking, is now 336 feet deep, leaving 94 feet to be accomplished to reach the grade of the tunnel. From the west end the tunnel was advanced 25 feet in one week, making it 4,902 feet long. The brick arch which fell some time ago owing to a slide has been rebuilt.

Railroad Items.

—The officers of the Chicago and Rock Island are:—John F. Tracy, President; Ebenezer Cook, Vice-President; Francis H. Tows, Secretary and Treasurer; Hugh Riddle, General Superintendent; P. A. Hall, Assistant General Superintendent. Directors—David Dows, Francis H. Tows, A. G. Dulman, Charles R. Marvin, New York; Robert A. Forsythe, Newburg, N. Y.; Milton Courtwright, Wm. L. Scott, John Hearn, Erie, Pa.; John F. Tracy, Henry H. Porter, Chicago, Illinois; Ebenezer Cook, George L. Davenport, Davenport, Iowa; B. F. Allen, Des Moines, Iowa.

—In Europe, as in this country, no satisfactory method is in use for warming railway carriages. The *Engineer* notices a new plan adopted in Bavaria. A special van is attached to the train and contains a powerful "calorifere," and the heated air is conveyed to all the carriages of the train by means of india-rubber tubes. The experiment with first-class carriages is reported upon so favorably that the authorities have determined to apply it to all the carriages on the Bavarian lines, and it is expected that it will soon be adopted on all the German railways.

—The officers of the Jeffersonville, Madison and Indianapolis recently elected are:—President, D. Rickets; General Superintendent, Horace Scott; Secretary, Geo. McKiernan; Treasurer, J. A. McCamel. Directors—Dillard Ricketts, James L. Bradley, Michael FitzGibbons, William B. Hamilton, Lucas Tuckerman, W. C. DePaw, Samuel Patterson, R. J. Bright, S. H. Hartwell, Wm. D. Thompson, Lawrence Riggs, W. B. Caldwell.

—The directors of the Ohio and Michigan recently organized are:—Gen. Hiram Walbridge, J. Edwin Conant, Henry Clews, D. Randolph Martin, N. Y.; Hon. Richard Mott, H. S. Walbridge, M. R. Waite, Toledo; John D. Loomis, John T. Huss, L. Hall, Tiffin. The following officers were elected:—President, Gen. Hiram Walbridge; Vice President, John E. Conant; Treasurer, Henry Clews; Secretary, Harry M. Bishop; Chief Engineer and General Superintendent, J. H. Sargent.

—The newly elected officers of the Pittsburg and Connellsville are Wm. O. Hughart, President; J. H. Page, Jr., Secretary and Treasurer; Benj. H. Latrobe, Chief Engineer. Directors—Wm. Oden Hughart, G. L. B. Fetterman, John Fleming, Wm. Philips, Wm. Baldwin, Pittsburg, Pa.; Cyrus Meyers, Somerset, Pa.; Joseph Pennock, Philadelphia; Benj. Deford, John Hopkins, Hazeltine G. Vickery, Wm. H. Perkins, Israel Cohen, Baltimore, Md.

—A meeting was held in Fayetteville, Brown county, last Saturday night, for the purpose of taking steps to secure the building of a railroad from that place to Blanchester. Hon. C. A. White of Georgetown, drew up articles of incorporation which were signed by John Boyle, M. S. Pickelheimer, Dr. W. C. Hall, John Dillon, J. C. McCoun and W. Ferris.—*Clermont Courier*.

—The following gentlemen have been elected directors of the Michigan Central Railroad; James F. Joy, John W. Brooks, Nathaniel Thayer, Erastus Corning, George F. Talman, Moses Taylor, Sidney Bartlett, John Jacob Astor, H. H. Hunnewell.

—The Central and Western Pacific railroad companies have consolidated under the name of the Central Pacific.

—The Southern Minnesota Railroad Company have sold to two wealthy Germans, 50,000 acres of land, situated in Martin county, for \$10 per acre. The purchasers will return to the old country within a month to bring out settlers.

—James F. Joy, John W. Brooks, Nathan J. Thayer, Erastus Corning, George F. Talman, Moses Taylor, Sidney Bartlett, John Jacob Astor and H. H. Hunnewell are the newly elected directors of the Michigan Central.

—The Kansas Pacific Railroad car shops, at Wyandotte, Kansas, were burned recently. Loss, \$50,000.

PROTECTING IRON—We notice a new way of protecting iron which is probably the very best yet invented if it can be carried out. It consists simply in coating the iron with a thin layer of sulphur. For iron ships, this would be the best process that could possibly be used, for it would give equal protection from oxidation and from fouling. There would be some difficulty in giving a large surface a coating of sulphur, but it might probably be overcome. At all events, the matter deserves the serious attention of practical men.

—A Michigan correspondent of a New York city paper writes as follows about matters in that State: The iron and copper interests are confined to the Upper Peninsula, which is nearly altogether a mining region, and will probably at no distant day be a State by itself. The iron district is in Marquette county, and is about six miles wide and one hundred miles in length. There are now 20 mines at work and 15 furnaces. The amount of production from 1856 to 1869, inclusive, is as follows: Iron ore, 2,939,230 tons; pig iron, 193,129 tons; total 3,132,359 tons. Value of production \$23,097,596.

—The Special Commissioner of the Revenue says that the annual crop of tobacco in this country is 225,000,000 pounds, valued at \$37,125,000; of wool 177,000,000 pounds, valued at \$75,225,000; of corn 900,000,000 bushels, valued at \$450,000,000; of hay 25,000,000 tons, valued at \$250,000,000; and of potatoes, 50,000,000 bushels, valued at \$90,000,000.

—They have been catching pearls on the California coast for some time. It turns out that those who catch and first sell them do not know their value, for they sell for \$20 what brings \$1,000 in Paris.

—There is some talk in London of starting a great international financial paper. The capital is fixed at £250,000, half of which is said to have been already subscribed. The object of the scheme is to kill the *Times*.

—The slag from iron blast furnaces is now used in Brussels and Paris for paving. It is said to surpass the best natural stones in strength.

—The immigrants who arrived at New York from Jan. 1st to June 9th numbered 105,990, against 106,784 during the same period in 1869.

—Kansas is estimated to have 200,000 square miles of coal fields.

—Dacotah contains 150,000 square miles of territory—94,000 more than Illinois.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JULY 14, 1870.

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Railroads of Cincinnati and of Ohio.

Ten years ago, the railroad system of Ohio seemed to be complete. The proportion of railroads to population was nearly, if not quite as great as in any part of this country, or of the world. Ohio had under the census of 1860, 2,340,000 people; and there were in actual service, 3,200 miles of railroad. This gives a mile of railroad to 750 people. Ohio has 40,000 square miles of surface; and there was 1 mile of railroad to 13 square miles of surface. We had no experience of what was a fair proportion of railroad to people or surface; nor have we now any real test on that question. We suppose the true test is only to be ascertained by actual experience; and that experience will determine it, by determining whether a road is, or is not, profitable. The profit of a road is to be determined by the amount of freight and passengers to be carried over it. These elements of freight and passengers do not always agree together. Take two obvious examples: Suppose a large deposit of coal or iron, or both in a region, which may be thinly settled; but, that coal and iron is absolutely necessary to towns and cities at a distance. A railroad through that district, though it may furnish comparatively few passengers, will be profitable as a freight road. Such a road is the one which was recently commenced at New Lexington to go

from Toledo to Pomeroy, with a view to supply the North-west of Ohio and Michigan with coal. Again, if we suppose a very rich agricultural district, such as we find in some parts of Illinois, the freight of agricultural products may make that road profitable, though it has no large city. We may estimate tolerably near before hand, whether a road will have business enough to sustain it; but, it is only experience will solve the problem perfectly. But, there is another immense and all important element in the estimates of the roads and value of railroads: This is the constant and rapid growth of the country. If New York had remained where it was in 1825, when the Erie Canal was commenced, the canal never would have been profitable. If the whole country had remained where it was in 1840, when the railroad system began; half the roads made since would not be needed. To apply this to Ohio, we may certainly conclude, that Ohio made as many miles of railroad in 1870, as is in proportion to the increase of population since 1860, what is that? We estimate just about 20 per cent. There were in 1860, 3,200 miles of road. 20 per cent. added, makes 3,820 miles. Then there are certain specific wants which have arisen out of the growth of other districts of country, and of new commercial connections. For example, the new road from Toledo to Pomeroy is a specific want to supply the North-west with coal. Then the absolute necessity of all the great Atlantic ports to be connected with Cincinnati, compels them to make some new branches and lines to connect with Cincinnati. For example then we see, if the Chesapeake & Ohio Railroad is made to the Ohio, then there must be a road to connect with Cincinnati; say 125 miles. So the New York Central must make the Short Line; so there must eventually be a direct line through to Mackinaw. If, then, we estimate the new roads to be made by these tests, we shall find that 1870 requires something like the following increase in railroads:

	Miles.
Natural increase.....	620
Main line of coal road.....	250
Commercial connections.....	300
Total increase.....	1,170

A part of these are made and making. Examples under the first head are the Hocking Valley road; the Dresden connection; the Baltimore entrance into Cincinnati etc. Under the second we have the road begun at New Lexington; and the third head is the Short Line soon to be made. We are safe in saying, that all the roads we have mentioned above will be made in a reasonable time. The files of the RECORD will show that we have anticipated all these things; but, like most sanguine people, we were years in advance of the times. Let us look a little into what seems new (but are really old)

schemes about to be carried into effect. Fifteen years ago, we were discussing a road from Cincinnati to Portsmouth; and surveys were made on that route. When the commercial revulsion of 1857 came, this and many other projected railroad schemes were abandoned; and in regard to Ohio, scarcely any one was revived till within two or three years. The road to Portsmouth was intrinsically necessary, and it is quite surprising, that it has not been made before. But, as we have observed before, the commercial crisis of 1857 stopped all railroad proceedings in this region, and the war followed soon after; the few years since have been taken up in restoring the country to its old position; but now all good schemes are revived, and we are in the midst of a new railroad era. To Cincinnati, it is a matter of vast importance, and she will secure the full benefit of all that is done. Nature—if not herself has vindicated her right to be the great commercial center of the West. It has compelled other cities and and other roads and interests to come to her. She might have advanced this progress full ten years by a more liberal and energetic spirit; but, the world has been obliged to come to her, and the loss of ten years, is no great thing in the progress of centuries. The Eastern cities have not brought their roads to Cincinnati from any love to her. On the contrary, they tried to avoid Cincinnati. New York and Boston have tried hard to ignore Cincinnati. But, to ignore Cincinnati is to ignore the Ohio Valley; and it would be madness to do that. So New York comes with the Erie road; and now the Central tries its hand; and is going to do just what the RECORD said ought to have been done years ago. But, there are still unsettled questions. The "Short Line" admits of considerable variations of route. We are told and believe it is true, that surveys have been made which show, that a line from Dayton to Cincinnati through Lebanon is as short as any other. From Lebanon for many miles south, the road is graded and the franchise held, by citizens of Lebanon, who also propose a large *doucer* in money to have the road pass through there. The matter is in the hands of the directors of the Short Line road; with a strong prospect, that the road will be made on that route. It would give a local business to the road, abstracted from the Little Miami of full \$50,000 per annum.

The variations in the routes, are above Sharon. From Dayton to Lebanon is just 20 miles; from Lebanon to Sharon 14 miles; and from Sharon to the upper plain of Cincinnati is 14 miles; making 48 miles for the whole distance. The surveyed route from Dayton to Cincinnati on the Great Miami Turnpike is 49 miles. Allowing for some curvature on the Sharon route, the whole distance will not exceed 50 miles, and a passenger train can easily run it in one hour and twenty minutes.

We wish the road could come through the tunnel; but, perhaps, we are again in advance. Time, however, will vindicate our position; and the roads will try to get through the tunnel just as they now try to come to Cincinnati. We are in a new railroad era; and all these ideas will be perfected and carried into practice.

Cincinnati Southern Railway.

In another column we give a very able article from EUG LETTARDY DE BEAULIEU, the chief engineer of the Selma, Rome & Dalton Railroad, in relation to the necessity, importance, and future traffic of the projected Cincinnati Southern Railway. The writer evinces a very thorough acquaintance with the railroad system of the South, and its capacity for traffic, as well as a comprehensive view of the means of more fully developing its usefulness and the resources of the Southern States. True, there is perhaps not a single fact, or material figure in the article that we have not heretofore published in the RECORD; it is, however, a very valuable *resume* of the subject.

The position *assumed* of the advantages of the Knoxville route over all others, is not entertained alone by Mr. DE BEAULIEU, there are others who persistently maintain similar notions. They, however, like the author, have never personally *surveyed* either or any route between the objective points—Cincinnati and Chattanooga,—and speak only from mere hearsay, or preconceived notions or prejudice. And yet, it may be true, that it is really *the best and cheapest*. This can be determined when the engineers have surveyed all available lines; and that is exactly what will be done, before the Trustees proceed to the construction of the road, and should it prove that the *conjectures* of Mr. DE BEAULIEU are correct, we have no more doubt that it will be adopted, than that water runs down hill.

The Trustees are not wasting time, nor fooling away money; but acquiring information that will in the end demonstrate the wisdom, prudence and economy of thorough surveys before the work of construction is commenced, and enable them to avoid the maelstrom in which so many enterprises are wrecked of re-constructing a large portion of their line. As above stated, they purpose to adopt *the best*, and *the best only* all the elements that go to constitute *the best*, fully considered.

—At a meeting of the stockholders of the Chicago, Burlington & Quincy Railroad Company, held on the 29 ult., Messrs. Erastus Corning, of Albany; John C. Green, of New York; Nathaniel Thayer, John M. Forbes, Sidney Barlett, John W. Brooks, Robert S. Watson, William Booth, and John N. Denison of Boston; James F. Joy, of Detroit, and Chauncey S. Colton, of Galesburg, Ill., were unanimously chosen directors of the company for the ensuing year.

There are 50,000 head of Texas cattle now grazing near Abilene, preparatory to being shipped to the Eastern markets; 200,000 are said to have crossed the Red River this season already, and are on their way to the same shipping point. The Kansas Pacific Railroad expect to transport 500,000 between the first of June and the first of December. If these anticipations are realized, there will be required for the transportation of this vast mass of living food 25,000 cars computing 20 head of stock to the car load, which at \$10 the car, (the price charged) will yield the company a gross income of \$1,000,000. It would be more difficult to compute the saving in the cost of each working man's daily dinner throughout the States east of the Mississippi, by this influx of the great cuisine staple; but it is safe to say that the price of beef in New York city is at least five cents per pound less than it would be if the Kansas Pacific road had not been built. This is the working man's dividend for the aid government gave in its construction.

THE NATIONAL CAR BUILDER—Is the title of a new monthly, issued in New York by Vose, Dinsmore & Co, the well known dealers in car springs and other material designed to be consumed in the construction of railway carriages. The number before us is tastefully gotten up, and presents an attractive appearance. Of the objects and purposes of this new candidate for popular favor, its godfathers say "that its aim will be to promote the interests of that department of mechanical industry indicated by its name. It is designed to be a medium for such information as will be useful to all who are concerned in the construction and equipment of railways, and especially to those more directly interested in car building. * * * *

"We shall bring to the notice of our readers every new and useful improvement in cars and car-trucks, with such comments thereon and accompanied with such pictorial designs as may be required to set forth and illustrate their respective merits. In so doing, we shall aim to be strictly impartial in all cases where rivalry and prejudice may exist. Our columns will be open for the discussion of all matters calculated to interest the class of readers for whom our paper is designed; and we would specially solicit communications for publication containing views and suggestions calculated to aid us in the objects we have in view. One of the chief advantages of a paper of this character is derived from a free interchange of opinion upon all points of controversy or doubt, the result being a clearer apprehension of what is practical and of permanent utility, as compared with what is transient and visionary."

—The Indiana division of the Grand Rapids & Indiana R. R between Fort Wayne and Sturgis, Michigan, has been formally opened for business. The company have equipped the road with first-class rolling stock, and are increasing it rapidly in order to meet the demands.

Cincinnati Southern Railway.

OFFICE SELMA, ROME & DALTON R. R. Co. }
Chief Engineer's Office,
ROME, GA., March 21, 1870. }

To JOHN D. CALDWELL, Esq., Cincinnati, O.
Dear Sir: In conformity with the desire expressed by yourself and several other members of the Cincinnati delegation, in the late "Green Line" excursion trip to the South, I have the honor to send you to-day only a few observations and remarks upon the contemplated Cincinnati Railroad, having been prevented from doing so sooner.

I look upon it, as a project of the greatest importance, not only to your city and the State of Ohio, but also to the States of Indiana, Illinois, Kentucky and Tennessee, and also to the Southern States, chiefly the Atlantic.

This project, if carried through, will in my opinion, be in the future, one of the main channels of traffic, and one of the sources of wealth and prosperity to your city, if its management is put in the care of prudent, sagacious, and wise men.

My appreciation of the main points will be given, on which European capitalists desire to be satisfied before investing their money in similar enterprises. These points are as follows:

The *opportunity* and *utility* of the undertaking.

Its *commercial* advantages.

The *location* of the line, its *characteristic* and *cost*.

Its *political* and *strategical* bearings.

Finally, what are the results in expectation, or in a business point of view—*will it pay?*

A fact well known to all practical business men, as well as to statesmen, is that nothing is so difficult to change as the old channels of trade; and this is because it is not easy to change either the tastes; the habits or necessities of a whole nation, nor the old established relations of business, confidences, and credits existing between merchants, either often cemented by family ties or association and mutual interests.

The most violent political and social convulsions are necessary to bring nations to such an extremity. It is what the late war and subsequent political events have done. The old commercial relations of business and trade between the South and North are shaken, uncertain, partly broken and left open to be done anew. This is the moment for your movement. The *opportunity* is presented. If this new channel of trade can throw open new markets for your surplus productions, or increase your productions, its *utility* is demonstrated.

If we consider the enterprise from a *commercial point of view*, as well as from its advantages, we must say few others present as this does, such prospects of success, if its projectors locate discreetly the anticipated

road, and manage judiciously when in operation, the Southern States—producing *tobacco, cotton, rice and sugar*, four staples which all ways command a *ready sale and cash*—are considered the best market not only for their productions, but for their liberal consumption of all the commodities and luxuries of life, even to such a point as to create jealousies.

Taking into consideration the topographical features and physical conformation of the country lying east of the Mississippi river, it must be divided into Mississippi States, Gulf States, and South-eastern Atlantic States.

In the first division, are a portion of Kentucky and Tennessee, as well as the States of Mississippi and Louisiana.

The second, are the Southern part of Mississippi, the States of Alabama and West Florida.

And in the third, are the States of Maryland, Virginia, North and South Carolina, East Tennessee, Georgia and Florida. Considering the facilities of communication existing between Cincinnati and these different sections, we find that by means of the Ohio and Mississippi rivers, and by the different railroads to Louisville, Nashville and Chattanooga; by Louisville, St. Louis and Grand Junction to New Orleans, and Corinth to Mobile, it is apparent that the Mississippi States, and the Southern portion of the Gulf States, have already ample facilities for exchange with the metropolis of the West.

As to the communications toward the Atlantic States, they are circuitous, long and costly.

The transportation is made now by way of New York, Philadelphia and Baltimore at the North, or by way of Mobile or New Orleans at the South, then by steamers to the nearest port of consumption; or by way of Louisville, Nashville, Stevenson and Chattanooga, which is the shortest existing route of all, if not the cheapest.

It is evident to any practical business man, that with such a condition of things, where the prices of exchange are so greatly enhanced by the cost of transportation, all parties labor under a disadvantage in both the Atlantic and Western States, and particularly Cincinnati; consequently consumption and production are limited, while both would be increased many fold if these obstacles were removed. These States are large consumers of provision and other products that come or would come from the West, but their cost of transportation being added, makes their prices so exorbitant, that planters prefer to direct their attention from the production of their main staples, and to raise all or a good portion of their provisions. It is in their direction your people must turn their efforts and energies to build the road. They must not lose sight of these two general and immutable laws of common practice, as well as principles of political economy: *short and easy communications by which time and money*

are saved, are *powerful levers of production.*

Consumption is in direct ratio to the production or wealth of the country. In other words, *help and promote production, and you will promote consumption.* To give you some correct idea of the country to be opened up to your market, I have added the following statistical tables taken from the public records up to 1860:

First table showing progress of population
Second table showing the area in square miles and acres.
Third table giving the commerce of imports and exports
Fourth table showing the progress of railroads and their extents.

Fifth table showing the value and progress of real and personal estate.

Names of the States.	TABLE 1. From 8th Census. Comparative Population.			TABLE 2. Area.		TABLE 3. Giving the commerce of imports and exports, for the two years, 1857 and 1858—1858 taken from the Report of the Secretary of the Treasury.					TABLE 4. Showing the extent and progress of Railroads, from 1860 to 1870 taken from the American Railroad Journal.					TABLE 5. Showing the value of real and personal property in the 7th and 8th Census, 1850 and 1860, respectively, at its increase and per cent.				
	Year 1840.	Year 1850.	Year 1860.	Square Miles.	No. of Acres.	1857.	1858.	Imports.	Exports.	1860.	1867.	1869.	1870.	1870.	1860.	1860.	Increase.	per cent.		
Alabama.....	470,019	553,034	687,040	11,124	7,119,606	8,930,137	9,878,386	9,713,971	9,474,511	457	352	627	700	786	519,297	367,019,914	157,702,382	71,974,918		
Arkansas.....	123,797	142,651	190,312	35,332	22,926,290	1,779,556	2,562,765	1,116,193	6,715,133	1740	1751	1830	1859	1830	430,701	909,703	518,699	389,558		
California.....	743,414	949,039	1,206,932	38,704	25,560,500	17,124,922	21,911,927	10,668,465	435,409	97	97	100	109	1130	926,600	479,354	938,997	15,187,389		
Florida.....	504,308	606,183	743,718	23,385	18,806,400	2,671,119	16,924,056	1,438,535	17,472,515	1431	1437	1547	1547	1547	835,425	617,615	926,533	92,660,533		
Georgia.....	691,392	906,183	1,104,432	33,609	22,695,700	40,660	9,579,559	624,045	5,982,151	1121	1437	1547	1547	1547	835,425	617,615	926,533	92,660,533		
Illinois.....	541,177	771,453	1,104,432	50,208	32,695,700	10,910	1,877,572	769,194	5,933,682	613	691	891	973	1030	3,852,270	73,101,501	40,923,407	117,074,843		
Indiana.....	591,750	771,453	994,201	36,722	24,115,200	606,912	914,192	506	769,194	1308	1318	1326	146	1430	301,624	660,043	112	124,843,112		
Iowa.....	829,210	1,092,211	1,558,884	43,600	29,178,000	43,600	30,178,000	43,600	30,178,000	401	417	440	440	440	201,624	660,043	36,414	117,074,843		
Kentucky.....	517,762	601,516	701,915	47,356	30,178,000	43,600	30,178,000	43,600	30,178,000	807	807	808	808	808	201,624	660,043	36,414	117,074,843		
Louisiana.....	322,411	517,762	708,912	46,331	29,178,000	19,580,633	26,270,924	18,349,516	10,040,680	336	336	336	370	415	2,309,764	602,118,538	356,119,814	157,337,331		
Mississippi.....	470,019	553,034	687,040	11,124	7,119,606	8,930,137	9,878,386	9,713,971	9,474,511	457	352	627	700	786	519,297	367,019,914	157,702,382	71,974,918		
North Carolina.....	123,797	142,651	190,312	35,332	22,926,290	1,779,556	2,562,765	1,116,193	6,715,133	1740	1751	1830	1859	1830	430,701	909,703	518,699	389,558		
Ohio.....	743,414	949,039	1,206,932	38,704	25,560,500	17,124,922	21,911,927	10,668,465	435,409	97	97	100	109	1130	926,600	479,354	938,997	15,187,389		
South Carolina.....	504,308	606,183	743,718	23,385	18,806,400	2,671,119	16,924,056	1,438,535	17,472,515	1431	1437	1547	1547	1547	835,425	617,615	926,533	92,660,533		
Tennessee.....	691,392	906,183	1,104,432	33,609	22,695,700	40,660	9,579,559	624,045	5,982,151	1121	1437	1547	1547	1547	835,425	617,615	926,533	92,660,533		
Virginia.....	541,177	771,453	994,201	36,722	24,115,200	606,912	914,192	506	769,194	1308	1318	1326	146	1430	301,624	660,043	112	124,843,112		
West Virginia.....	829,210	1,092,211	1,558,884	43,600	29,178,000	43,600	30,178,000	43,600	30,178,000	401	417	440	440	440	201,624	660,043	36,414	117,074,843		
Wisconsin.....	517,762	601,516	701,915	47,356	30,178,000	43,600	30,178,000	43,600	30,178,000	807	807	808	808	808	201,624	660,043	36,414	117,074,843		
Total.....	3,224,411	5,177,762	7,083,912	491,431	314,519,840	19,580,633	26,270,924	18,349,516	10,040,680	110,040	10,151	10,665	10,665	10,665	1,727,973	971,660	572,076	33,378,129		

*Or nearly the area of England and Wales, 56,330 square miles; of Scotland, 31,324 square miles; of Ireland, 32,512 square miles; of France, 206,979, and of Spain, 177,559 square miles, making altogether 566,694 square miles.

It is proper to remark in order to explain the comparatively small number of miles of new road given to the circulation in the past years, that when the late war ended, the railroads in the Southern States were left an entire wreck; and if it had not been for the indomitable energy, industry and perseverance of the different officers of railroad companies, who had to build the whole work anew, they would now be useless to the country.

These tables, in default of more complete and precise statistics, suffice already as they are, to give an approximative idea upon the main basis which constitutes the wealth and prospects of a country, viz.: its population, its area, its commerce, its facilities of communication, and its real and personal property.

In the same manner we judge a city, by the condition of its streets, its accommodations of life, such as markets, water and gas works, sewers, etc., of its public buildings, the court house, the schools, fire department, churches, jails, bridges, stores and buildings.

These tables also prove the existence of immense natural resources in these States which have never yet been developed to one-tenth part of their capacities. Besides these latitudes are endowed with a genial climate, short winters, and resulting in general salubrity. They not only produce the four staples already named, but corn, all the small grains, potatoes, onions, vegetables of all kinds, and fruits of every variety, tropical as well as others.

Immense forests, still primeval, cover nearly all their surface, furnishing abundantly the most valuable merchant lumber; a multitude of streams of all dimensions are scattered over their area, from which can be converted incalculable water power, and free from the frost and ice of a more Northern latitude.

Vast scopes of these regions are underlain by mineral wealth of immense value, which are unexplored and untouched. Their soil is generous, and the climate so favorable that three crops can be raised at one time, with their distinct time of harvest: wheat in the spring, corn in mid-summer, cotton, rice, tobacco, and sugar in winter; fruits and vegetables from January to December.

A very important natural advantage belonging to said States, is the physical structure of their shores on the Atlantic and Gulf, which resembling a network, are cut in a succession of bays, harbors and sounds, in most of which vessels of even heavy tonnage can find safe and comfortable anchorage, and effective shelter against the fury of the elements.

Among the most important harbors are those of Baltimore, Norfolk, Wilmington, Charleston, Port Royal, Savannah, Brunswick, Fernandina, St. Mary, Jacksonville, Pensacola, Mobile and New Orleans.

The commercial statistics of exchange taken and computed between the North and the South from official reports, show that from 1836 to 1860, they amounted to from \$760,000,000 to \$900,000,000, or say original transactions to have been from \$380,000,000 to \$450,000,000, yearly. Formerly with the institution of slavery, all the attention and energies of the Southern States were concentrated in purely agricultural pursuits, and were mostly limited to the culture of the four staples—tobacco, cotton, rice and sugar; and in connection with these, a portion of their necessary provisions.

If you take the report published in 1863, by the Treasury Department, exhibiting a summary view of the exports of domestic products of the United States from June 30, 1847 to June 30, 1861, you will be convinced in spite of assertions to the contrary, provided we can rely on government reports, that the Southern States even with pursuits purely agricultural, have done their duty toward their sister States—that they have distinguished themselves.

I will give only the sum of each product for the whole period of fifteen years, as I found it in that report:

They are the products	
Of the sea.....	\$ 49,941,461
Of the forest.....	151,765,517
Cotton.....	1,522,911,074
Agriculture.....	762,673,929
Tobacco.....	186,104,482
Manufacture.....	353,165,600
Raw produce.....	31,651,289
Specie and hullion.....	461,897,424

Total.....\$3,536,110,776

Making the part of the Southern States from the above sum the following figures will be found nearly correct:

Cotton.....	\$1,522,911,074
Agriculture, rice and sugar.....	97,000,000
Tobacco.....	186,104,482
Forest.....	38,000,000
All other products.....	54,984,444

Total.....\$1,900,000,000

I give these statistics to show how important formerly was the Southern market, and what abundance of resources are still at their disposal.

The political events of the last nine years have changed and destroyed that order of things. The complete revolution in the old system of labor, will be followed by a like revolution in the system of production. The South must now multiply its products. It must abandon its old routine in agriculture, and adopt all the late improvements in agricultural science and machinery, so as to produce as much as formerly, with one-third of the labor and cost. The South must now avail itself of the natural advantages put in its hands and at its command. Besides agricultural pursuits, it must direct its attention and exertions to manufacturing, mining and commercial enterprises. These pursuits com-

bined, will make it strong, wealthy, and powerful.

Its present great wants are capital and labor—the immigration of an industrious and intelligent population, composed of farmers, laborers, and mechanics of varied pursuits—That population will come, everything invites it. That population must come, the inducements are too strong and powerful for it to be otherwise. Here comfort and fortune will be the certain reward of intelligence and industry.

Let your Western people in general, and Cincinnati in particular, connect these States of the South-east with easy and direct communications, fast and cheap transportation, and in a few years the ledgers will tell upon the wonders of modern times

Considered in a *commercial* point of view, the elements of wealth and prosperity are so abundant, that it is safe, I believe, to pronounce the construction of your Cincinnati Southern Railroad an *opportune undertaking*, and with as bright prospects as any great enterprise ever had, if it be but intelligently located, worked, and managed wisely and judiciously.

THE LOCATION OF THE ROAD, ITS CHARACTERISTICS AND COST.

The commercial and financial success of your enterprise, will depend altogether upon the *permanent location*, which will be selected for your road, considered in its direction, and characteristics, or *gradients and curvature* Cincinnati having already ample means of transportation for the States of the valley of the Mississippi river, the projectors of its Southern road, have cast their eyes on Chattanooga, and selected that point as the terminus of the route Southward.

You can reach Chattanooga by two routes, either cutting your way through the mountains, or leaving them on the West of your line. Looking at this matter, either in a professional or commercial point of view, the last one, crossing the mountains on the Eastern slope, and passing through the Gap near Jacksboro, Tennessee, this is the one I should recommend to build, even if necessary at a *higher cost*.

I am not in position, and decline to present and discuss this question in its technical bearings—not knowing the country to be traversed, nor its topographical features, otherwise than by maps, and some general notions of its physical geography. The main object aimed at by your proposed road, is to reach the Atlantic and Gulf States, now separated from your city by the succession of chains of mountains—Alleghany, Cumberland and Lookout. By running it direct to Chattanooga between the mountains, as is the first proposition, your object is completely lost. These mountains, running N. E. and S. W. in succession, and divided as they are, in many parallel ranges, separated by deep val-

leys, present as before to the East, the same barriers with the Atlantic States, as far down South as Shelby county, Alabama, and will have to be cut or tunneled through, in order to make the requisite connections. As to the probable characteristics of the country to be traversed in this supposition, I can but surmise them, when by taking for comparison the Nashville and Chattanooga Railroad, the nearest in the vicinity, and running along between, and through these same mountains, and having even more room to select its routes, presents maximum gradients of 2 feet in 100 feet, or 105.6 to the mile, and cost \$43,000 per mile, (according to the last January number of the *American R. R. Journal*.) putting its whole length with its branch at 158.75 miles, and cost \$6,822,580.

Presuming the object of the projectors of the Cincinnati Southern Railroad, is to take the widest grasp possible on the Southern Atlantic States, the line I should propose, is in my opinion, the one most likely to reach the object desired, would be to run in a direction mostly Southward toward the great chains of mountains, at the most convenient and practicable place in the neighborhood of Jacksboro, Tennessee, following the course already selected for the projected railroad from Knoxville, Tennessee, to the State of Kentucky, thence to unite at London Station on the E. T. & Ga. R. R., which is already a link in the great thoroughfare, and shortest distance between New York and New Orleans, besides connecting more or less directly with all the main systems of railroads of the Atlantic and Southern States, numbering already in operation some thousands of miles, as shown by the tables given above.

To be more specific, I would propose starting from Cincinnati, and passing the river to Covington, Ky., to make use of all the road already in operation from that point to Paris, thence, if a direct line is practicable, to construct it to Richmond, London, Williamsburg and the Tennessee State line, thence to Jacksboro, Tennessee, Clinton, to cross Clinch river, at or near that place; then to perfect the junction with the E. T. & Ga. R. R. at London, at which point would terminate the work of construction on the main trunk of your road without the necessity of bridging the Tennessee river; and there to make use of all the roads already built in the Southern Atlantic States, and hereafter if you had capital to spare, to assist other companies in the construction of such roads which would best serve your interests, by perfecting and completing your Southern net-work of railways as has been done by New York, Philadelphia, Baltimore, Boston, Chicago, etc., for theirs.

The direct distance from Paris, Ky., to London, Tenn., is approximately 160 miles, making it about 180 miles for a railway line.

Having never been on the ground, as I said before, I will estimate the cost of this line

only by making use of calculations of probabilities:

130 miles with ordinary work at	
\$25,000.....	\$3,250,000
50 miles with heavy work at	
\$45,000.....	2,250,000
Total, 180 miles, probable estimate	\$5,500,000
General average per mile.....	\$30,555

Located as just described, this line will offer many advantages over a line confined between the mountains, viz :

1st. The shortest distance possible to the Atlantic Southern States, and to the great artery which communicates with, and ties them together.

2d. The shortest and cheapest road to build.

3d. Your shortest road to East Tennessee, Virginia, North and South Carolina.

4th. From Cleveland, Tennessee, you can at will, either reach Chattanooga, your proposed terminus, by the Cleveland & Chattanooga R. R., or follow its Southern direction on the Eastern side of the great chain of mountains.

5th. At Dalton, which is the terminus of the Selma, Rome & Dalton R. R., you unite in this most important link in the Northern and Southern thoroughfare, a link 234 miles long, and which has for its lessee, one of the cleverest, most industrious and enterprising of your citizens, Mr. A. D. Breed, who is also a stockholder in the same road, I am told, to the amount of \$1,500,000.

This is a consideration of great importance to your undertaking.

6th, and lastly, this line will furnish rather better gradients than a mountain route can possibly do.

Passing in review the connections and ramifications which this proposed line makes or meets, we see that from Clinton, Tennessee, by way of Knoxville, Bristol, Lynchburg, etc., you can reach Richmond, and any part of Virginia and Maryland.

Also, via Knoxville and the different railroads in progress, East of that place—the Blue Ridge, Rabun Gap R. R., and others, you can reach Southern Virginia, North and South Carolina, and the ports of Norfolk, Wilmington and Charleston.

From Cleveland, as already stated, you reach your terminus, Chattanooga, thence Western Alabama and Eastern Mississippi through the important Alabama & Chattanooga R. R., now in progress of construction, and running West of the Lookout mountains, and through very rich mineral regions.

From Dalton, by way of the Western & Atlantic R. R., or the State Road of Georgia, and Atlanta, its go-ahead capital, you can reach, via Augusta, (the manufacturing city,) Charleston or Savannah; or from Atlanta, via Macon, you can reach Savannah, Bruns-

wick, Columbus, Albany and South and South-eastern Georgia and Florida.

At Rome, Ga., you will meet with several important connections, when the contemplated enterprises from that place are completed. Among these are the opening of the Coosa river for continuous navigation, with the Alabama river to Mobile.

The construction of a railroad direct to Decatur, Alabama, to intersect rich mineral regions.

The construction of a railroad direct to Lagrange, Columbus and Southern Georgia.

At Jacksonville, Ala., begins a railroad, partly graded, to Guntersville, on the Tennessee river. This point will probably be the terminus also of the two other railways originating, one at Griffin, the other at Cartersville, Georgia.

At Oxford, Alabama, will apparently intersect the railroad in construction from Opelika to Guntersville, Alabama.

At Lime Kiln is the intersection of the very important railroad now in construction from Montgomery to Decatur, Alabama, and passing through the richest mineral section in the State of Alabama.

And at Selma, Alabama, communications are already or soon will be made with Montgomery, and South-eastern Alabama, Pensacola, Mobile and South Alabama, South-eastern Mississippi and New Orleans.

I have given intentionally all these connections completed or in progress, and those contemplated along the Selma, Rome & Dalton Railroad, to show the advantages to your city to have this important link attached to your projected Southern Railroad system.

We resume this paragraph by affirming what has been said before, that your projected Southern Railroad, if permanently located as above described, is the shortest and cheapest to be built, with as good, if not better characteristics or gradients. The shortest to get rid of the great natural barriers east of you, the Alleghany, Cumberland and Lookout ranges of mountains, and to establish your connections with States east and south of you. That it throws open for the traffic and commerce of the West and South, the widest area of the Atlantic Southern States that you can possibly embrace, and offers more numerous connections with States and their different systems of railways, more direct lines, and in a word—more facilities to transact business.

As regards the *political bearings* concerning this line, they can be resumed in a few lines:

By shortening and facilitating communications between different States or sections of country. Your line will in the same ratio facilitate and increase commercial relations and social intercourse, the wealth of both sections, as also, the good will and feelings between them. It will act as a powerful agent of civilization, promoting in all sections

the facilities for agriculture, industry, manufacture and commerce; which produce wealth and happiness, making the ties of friendship closer between all sections. Every party must be benefited, even the general government in the shape of more revenues to the Public Treasury.

As for its *strategical bearings*, they have to be considered; but in the event we should get into war with a foreign power, which is not probable in our life time, in that case located and connected as before described, originating in the great centers and hearts of the immense agricultural regions of the West, it would be to the government its most important auxiliary, its great channel to furnish supplies to the armies of the Southern Atlantic States.

The last point to examine and very essential in its nature is: *Will this enterprise pay?*

We have presented an idea of the wealth and resources of the Southern States, the means to develop them, and the fair prospects of all sorts existing for their development.

There remains but a few remarks to add to those already expressed, and if it is demonstrated that this line will increase the mutual relations of business between the Western and Southern States, it must necessarily result that the enterprise will pay.

As already alluded to, the Western States as well as those of the South Atlantic slope have labored to this day, under very great advantages for their respective interests, principally the latter, owing to the want of direct communications, and to the additional cost to the products, resulting from the circuitous routes upon which they are carried, and which in many instances are double, treble, and even four times what they should be over the most direct line.

One of the first principles, of political economy, as well as good commercial sense, simple, clear and true in its signification, teaches us that an industry to be profitable must be congenial, natural, and the best adapted to the country or locality where it is established. Soil, climate, raw materials, labor, wages, provisions, outlet, &c., are all considerations to be looked into and must be found in the best conditions.

Mr. A. T. Stewart of New York, as a sensible man, will not transport his stores on Broadway among Sioux Indians, nor even in the city of Pitulka, Alaska; nor Mr. Peter Cooper will carry his furnaces to Palatka, Florida, on the St. Johns River.

Reasoning then from this axiom, we deduce this truth, that if, while in the States of Ohio, Illinois, Kentucky and Indiana where 20 to 35 bushels of wheat, and 80 to 100 bushels of corn are produced to the acre, the average only in the Southern States is 5 to 7 bushels of wheat and 10 to 20 of corn; it is evident, that the culture of said products is

profitable in the Western States; and ought to belong exclusively to them. In the same manner the culture of tobacco, cotton, sugar and rice is more congenial and better adapted to the Southern States, and consequently more profitable to these.

Why is it the South produces the above cereals in the place of its own staples, so much to its own detriment? The reason is, that transportation enhances the cost so much.

We must not lose sight of the important fact, that products of relatively small value and of heavy weight, or of large volume, as raw material to build, fertilizers, grain &c., can not stand high freights or long transportation.

The South with all its disadvantages to raise its provisions, can with its present means of communications, produce them cheaper than you can furnish them. Make then the shortest road practicable, and deliver these cheaper than we can produce them—you monopolize the Southern market, and in return we send you at less prices, staples you can not produce, and by this turn of affairs your enterprise is obliged to pay.

Your line in this way will become the great channel of trade between the Western and Southern Atlantic States.

These are the few remarks that have suggested themselves to me, with reference to your projected enterprise, which, if carried out, will, I am certain, benefit Cincinnati in the same manner as the Erie Canal and Erie Railroad have benefited New York, the Baltimore & Ohio Railroad has benefited Baltimore, and as at present the Central Railroad of Georgia is benefiting Savannah.

A large current and counter-current of business would soon be created in this new channel, provided, it is put under the control of a man of wide ideas, of sound and correct views, of extensive, administrative faculties and experience, and chiefly, of great and indomitable executive will.

There exist but very few men who could govern France, although you find thousands claiming to be able to do so; in the same way, I will say it is not the business of every man to be a railroad president.

To conclude, I will express to you my regrets of my inability of giving you and your friends a better and more complete report.

The want of the knowledge of the physical features of the country, where your road is to be built, has not permitted me to touch on the technical question, a most interesting one, but which we have often to overlook for considerations of more importance to companies.

Also, for the want of special and particular statistical information, and principally the want of time, have altogether compelled me to limit this appreciation of your project to generalities more than to facts.

I have given to you in a professional point

of view, the true expressions of my ideas, views and impressions.

I shall be happy if they coincide with yours, and that of your friends the originators of the great project; and I shall be more so to see this reduced to a material fact, the results of which I believe will far surpass our most sanguine expectations.

There is no country in the world that presents so rich and flattering a field for capital and enterprise.

I remain sir, with high consideration and esteem,

Your most obedient servant,

EUG. LETTARDY DE BEAULIEU,

Chief Engineer.

New Albany & St. Louis Air Line Railroad.

A correspondent of the *St. Louis Republican* describes as follows this proposed railroad:

"The eastern terminus of the road will be New Albany, but ultimately connections with the existing lines will be formed, and through cars from St. Louis will pass over the bridge, and passengers be landed nearly in the center of Louisville. The section of road from New Albany west to Mount Carmel, Illinois, is under direction of the following directors: Wm S Culbertson, Jesse J. Brown, G. C. Cannon, Lawrence Bradley, John McMahon, John B. Ford, E R Day, Maurice McDonald, L. Matthews, Augustus Bradley. Also, Mr Edward H. Golden, of Crawford county, B P Douglas, of Harrison county, and Andrew Lewis, of Gibson county. Mr. Augustus Bradley is President, and George Lyman, is Secretary. The names we have given of the directors comprise those of some of the wealthiest and most prominent citizens of New Albany, and furnish a guarantee for faithful and energetic management. It was determined by the directors that this section of the road should not be put under contract until \$1,500,000 stock subscription had been raised. This sum has all been subscribed now except \$25,000, which the Louisville Bridge Company agree to take. As soon as this financial matter is closed, the company will put the heavy work on the New Albany end under contract. On the 28th inst. a meeting of the directors will be held, and ten miles of the road from Mt. Carmel to Princeton completed by the 1st of January, in order to obtain additional subscriptions. The right of way for nearly the entire distance from New Albany to Mt. Carmel has been secured. In the vicinity of the former city the only difficult engineering work connected with the construction of the road will have to be performed. New Albany is nearly shut in on the west and south by an amphitheater of hills—not lofty but forming a ridge through which, or rather under which, the railroad line will be carried in a tunnel of about 2,700 feet in length.

"The section from Mt. Carmel to Mt. Vernon, a distance of about sixty miles, is principally under the direction of Mr. Robert Bell who is President of the Board of Directors. He is busily engaged at present drawing the attention of the different counties to the matter and securing subscriptions. Most of the counties involved will vote on the question of subscription within a few weeks, thus anticipating the operation of the restrictive clause

of the new constitution of Illinois against counties voting for stock. About twenty-two miles of this section have been already graded. The work was done during Gov. Pickering's time, when the same project of connecting St. Louis and Louisville by a direct line of rails was under consideration, so that the conception of the present enterprise is not of recent date, but some twenty-five years old.

"The section from Mt. Vernon, to East St. Louis is under the management and control of Gen E. F. Winslow and bears the title of the St. Louis & South eastern Railway. In fact the three sections named, are separate in their control and ownership, but when completed a consolidation will be affected as dictated by mutual interest and already agreed upon. This last section is about 75 miles in length and according to a recent statement by Gen Winslow, will be completed by the 15th of November, all the necessary funds having been secured."

Cincinnati, Richmond & Chicago Railroad Company.

REPORT FOR THE YEAR ENDING MARCH 31, 1870, as follows:

INCOME.	
From passengers...	\$51,335 77
From freight 35,572	
tons.....	46,965 10
From mails and exp...	6,784 45
From rents, &c.....	616 63
	\$105,751 95
EXPENSES.	
For operating	\$77,579 48
For taxes—State	\$2,974 98
For taxes—national.	1,284 62
	4,259 60
Insurance	319 63
Interest on bonds.....	43,750 00
Interest and ex	148 63
	\$126,056 74
Excess of expenses over receipts	\$20,304 79

Balance Sheet.

ASSETS.	
Construction.....	\$ 826,733 29
Equipment.....	120,151 98
Real estate.....	700 00
Profit and loss	82,109 62
Total	\$1,029,994 89
LIABILITIES.	
Capital stock	\$ 382,600 00
First mortgage bonds.....	560,000 00
Second " "	62,000 00
Interest on bonds unpaid.....	462 25
C, H. & D. R. R. lessees.....	17,832 64
Total	\$1,029,994 89

LEAVENWORTH, LAWRENCE & GALVESTON R. R. —Montgomery county, Kansas, which is adjoining the Indian Territory and at its nearest point 24 miles west of Chetopa and 42 miles west of Baxter Springs, has voted to subscribe \$200,000 to the Labone road, in case it shall be constructed through its territory for a distance of not less than 15 miles. It is expected that the cars will be running to Humboldt by the middle of August. The road has been graded eighteen miles south of Humboldt, and the ties distributed along the track, ready to be put down.

Railroad Items.

—The Grand Rapids & Indiana Railroad is now in operation between Fort Wayne and Sturgis, where it crosses the Lake Shore & Michigan Southern, a distance of 56 miles. It is progressing rapidly, with most of the road-bed completed, north of Sturgis to Grand Rapids, and has recently been opened for business north of Grand Rapids as far as Big Rapids (named "Leonard" on most of the maps) 55 miles, and will soon be completed to Paris, five miles further north. It has an arrangement for running its cars over the Kalamazoo Division of the Lake Shore & Michigan Southern between Grand Rapids and Sturgis, until October 1st, so the connection is complete from Fort Wayne to Big Rapids, 207 miles.

—The *Evening Express* says:
The Board of Directors of Wells, Fargo & Co.'s Express Company, have resolved to call a meeting of the stockholders, to be held in New York, on the 1st of September next, to vote upon the proposed reduction of the capital from \$15,000,000 to \$5,000,000, said reduction to be effected by the surrender of the certificates of stock which may then be outstanding, and the issue in lieu thereof of new certificates, in proportion of one share of par value \$1,000 for every three shares of present stock.

—Twelve miles of the Nebraska Division of the Burlington & South-western Railroad, from Hulo westward, are in operation, and it is intended to complete 40 miles more, to Pawnee City, by the first of October, and also ten miles eastward, to form a connection with the St. Joseph & Council Bluffs line at Mound City. Six thousand tons of iron are on the way from England for the road, an amount sufficient to lay 68 miles of track. On the Eastern Division, west of Fort Madison, 500 men are at work.

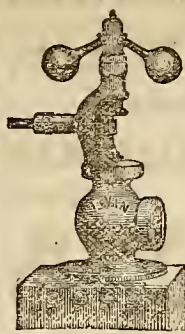
—On the Nebraska extension of the Burlington & Missouri River Railroad the track is laid nearly to Lincoln, the capital of Nebraska, about 50 miles from Plattsmouth, and about 25 miles south-west of Ashland. The contract for grading the line for twenty miles west of Lincoln has been let to Messrs. Sullivan, Horrigan Brothers, West Brothers, and Foley Brothers. This will take the road about six miles west of the Blue River.

—The works of the Schuylkill Navigation Company have been leased to the Reading railway for 999 years, at an annual rental of \$655,000, of which \$627,852.52 is for interest on loans and bonds, \$80,556 for dividends on preferred stock, and \$28,360 on common stock.

—The Stock Exchange has been notified that the Toledo and Wabash Company will issue thirty days hence \$3,000,000 or 30,000 shares new stock of the company to represent the extension of the line from Decatur, Ill., to St. Louis, and for other purposes.

—The grading on the Atchison, Topeka & Santa Fe Railroad is completed and the track-laying soon will be as far as Emporia, where it will cross the Missouri, Kansas & Texas road. Engineers are locating the line south-west of Emporia.

—The State of South Carolina will purchase another \$100,000 State bonds for the sinking fund, under sealed offers, to be opened on Thursday, July 7, at the State Agency, No. 9 Nassau street, N. Y.



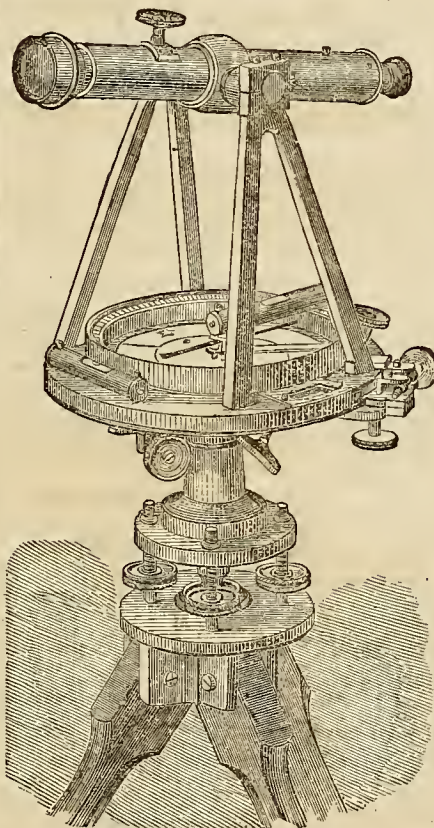
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Successor to

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GRAND SCENERY!

QUICKEST ROUTE

59 Miles in Distance Saved

Baltimore & Ohio R.R.

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WITH THE PRIVILEGE OF GOING TO

WASHINGTON

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From Cincinnati or Columbus to Baltimore and but ONE CHANGE
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Ask for TICKETS and BAGGAGE CHECKS via Baltimore & Ohio R.R.

J. L. WILSON, Master of Transportation.
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JANUARY 1st, 1870.

Cincinnati to St. Louis Without
Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph
Jefferson City, and all points on the Lower Mis-
sissippi River, and on the the Illinois
Central Railroad.

TRAINS RUN AS FOLLOWS:

St. Louis, Evansville and Cairo
Daily..... 7:15 A. M. 10:55 P. M.
Osmond Accommodation..... 3:10 P. M. 8:45 A. M.
Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vin-
cent's time, 12 minutes slower than C. M. time.

For tickets or information apply at Offices, 132 Vine
Street, Corner Front and Broadway; and at Depot, Foot
Mill Street.

F. G. BONDURANT, Superintendent, Cin. O.
C. E. FOLEY, Gen'l Ticket Ag't, St. Louis, Mo.

CHANGEABLE GAUGE CAR TRUCKS

As in use on the National Despatch Line of
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information apply to

The Lobdell Car Wheel, Tire & Machine Co.

Manufacturing Agents,

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2-12-9, 52

THE LOBDELL CAR-WHEEL, TIRE & MACHINE COMPANY,

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Established in 1836.

All kinds of Railroad Machinery

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12-5-70, 52

ERIE RAILWAY.

1400 MILES under One Management. 860 MILES without Change of Coaches.

BROAD GAUGE, DOUBLE TRACK ROUTE

FOR—

NEW YORK, BOSTON,

Providence, Albany,

PITTSBURG, HARRISBURG

Philadelphia, Baltimore,

And Principal Points in

NEW YORK, NEW ENGLAND

—AND—

Pennsylvania.

This Railway extends from
CINCINNATI to NEW YORK, - 860 Miles.
CLEVELAND to NEW YORK, - 625 Miles.
DUNKIRK to NEW YORK, - 460 Miles.
BUFFALO to NEW YORK, - 423 Miles.
ROCHESTER to NEW YORK, - 385 Miles
AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,
(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,
daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Checked Through.

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUCK, Gen'l Pass'r Ag't.
W. M. R. BARK, Gen'l Pass'r Ag't.

Best Route to St. Louis and Chicago

INDIANAPOLIS, CINCINNATI —AND— LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS, CAIRO, CHICAGO,

Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,
And all Rail and River Towns and Cities in the West,
North-west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 pm
St. Louis and Springfield Express....	9.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.30 pm	8.25 am

*The 10.10 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7.00 A. M.	6.30 P. M.
do do do	9.45 P. M.	7.00 A. M.
Toledo, Detroit & Canada.....	7.15 A. M.	10.25 P. M.
do do do	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago....	7.15 A. M.	10.25 P. M.
do do do	2.30 P. M.	5.40 P. M.
do do do	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	2.30 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo....	6.30 P. M.	10.20 A. M.
Muncie & Indianapolis.....	7.15 A. M.	10.25 P. M.
do do do	5.40 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond....	7.15 A. M.	10.25 P. M.
do do do	5.40 P. M.	10.20 A. M.
Hamilton Accommodation.....	9.30 A. M.	8.05 A. M.
do do do	6.30 A. M.	6.30 A. M.

Trains run **SEVEN MINUTES FASTER** than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots, East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,
No. 27 West Third Street, Cincinnati.
W. P. SHINN, General Freight Agent.
[Pittsburg, Pa.]

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.40 P. M.	9.35 A. M.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Sup't Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:00 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9:45, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:2, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors
T. WRIGHTSON,
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JULY 21, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
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" " " six months.....	135 00
" " " per annum.....	240 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Propr's.

The Southern Railroad.

Axial Line from the Lakes to the Southern Atlantic.

We thought we had got through with the discussion of the Southern Railroad for the present. Besides, the weather is excessively hot, and if we go any farther South, we shall be roasted. But we seat ourselves at Mackinaw, and view the matter in a cooler manner. We find a report by the citizens of Rome, (Georgia) which carries us back some fifteen or more years, to what we were advocating with all our might—the "Cincinnati & Mackinaw Railroad." The meaning of that scheme was simply a "GREAT AXIAL LINE" for the entire United States, with its northern terminus on the center of the great lakes, at Mackinaw; one point at Cincinnati, the center of the Ohio Valley; and the other at the extreme South, Pensacola or Apalachicola. All the railroads of the country had been made East and West—with a view of carrying produce to the Atlantic ports. Now it was and is perfectly manifest, that a great line, crossing those other roads and having no great competition, and exchanging the products of opposite and different climates, must of necessity be extremely beneficial to the country; and, in all human probability, very profitable to its owners. But there were two difficulties in the way, which have heretofore proved inseparable. First and great-

est, the South had no great city like New York or Boston, which must secure the trade of the interior, and was waiting to advance its capital for that purpose. If it could have done that, the great Southern Railroad would long since have been built. In default of that, Cincinnati would at any time have done it by corporate means, if she was allowed to do it. But she was not, and here comes the second difficulty. The State of Ohio, by one of the most ridiculous and indefensible provisions of the Constitution which man ever contrived, prohibited Cincinnati from subscribing to railroads; and to crown the whole, Kentucky forbid this city to make it at her own cost!

But now after more than fifteen years of discussion, we have the same old ideas advanced in the South, and everybody sees they are just, and everybody wants the work done; but here are the same old obstacles and what shall we do? Well, it will do no harm to look over the route, and see the interests the South has in the matter. Now let us look at the route a little. In the first place, we may note, that this question of route has been no little in the way all the while. When Cincinnati fixed a Southern "terminus," it should have been a terminus in the extreme South—and thus all the intermediate interests would have been united in Kentucky or other quarters where we wanted strength. The true plan was to consider the "Southern road," as a part of the grand Axial Line through Cincinnati, from Mackinaw to the extreme South. It is very obvious, that in such a line, Georgia has more interest than any other State, for she is a large State; and this axial line would go through the whole State from North to South. Hence, it is, we have this Rome report, and others that have been made. The Rome report says, speaking of the LaGrange & North Georgia Railroad:

By reference to a map of the country, it will be seen that this road, if ever built, will form one important link in the great railway project which is designed to connect the Northern lakes with the Gulf of Mexico, and which is to run as nearly as practicable upon an air line, about midway between the Atlantic ocean and the Mississippi river.

Taking Appalachee bay as a starting point, this route will traverse the entire State of Georgia from South to North, near her Western border, and in close proximity to the line of Alabama, thus forming a common channel of traffic and travel for both States; thence it will cross through East Tennessee and Kentucky, to Cincinnati, where it will divide itself into two main routes now in operation; the one running North-east toward the lakes Huron, Erie and Ontario, and the other North-west, toward the lakes Michigan and Superior.

To be more specific in relation to that portion of this road in which we are more immediately interested, let us take St. Marks, on the Appalachee bay, as a starting point, and the road will pass through Tallahassee and Quincy, in Florida, thence it will cross

into Georgia, touching at Bainbridge, Cuthbert, Columbus, LaGrange, Carrolton, Rome and Chattanooga, where it will form a junction with the great air line, and thus supply a means of communication northward, which the people of Western Georgia have long wanted.

In other words, the construction of this line will give Rome a route through the whole of Georgia, nearly parallel with the West line of the State. But the material point, (and it is all important,) of this line, is that it will be nearly 200 miles *shorter to the Gulf* than the only practicable connection we now have with Chattanooga, and furthermore, and equally important, it will afford the *shortest connection with the roads through South-west Virginia, and South Carolina*. The proof of this is in the following statement made in the report:

Taking Columbus, Georgia, and Cincinnati as the two points for comparison, the following distances are found:

	Miles.
By the following routes.	
From Columbus to Rome, to be built.....	141
From Rome to Dalton.....	38
From Dalton to Loudon, Tennessee.....	82
From Loudon to Paris, Kentucky.....	180
From Paris to Covington and Cincinnati.....	80

Total distance from Columbus to Cin'ti. 521

From Columbus to Atlanta.....	139
From Atlanta to Chattanooga.....	138
From Chattanooga to Nashville.....	151
From Nashville to Louisville.....	185
From Louisville to Covington & Cincinnati.....	107

Total distance from Columbus to Cincinnati by actual routes..... 720
Giving in favor of the proposed routes 199 miles.

The State of Kentucky will, in its eastern portion, at least derive more benefit from this direct line to South Atlantic States, chiefly from that section of the system between Loudon, Clinton and Paris, than any other in the country.

Taking for illustration, Paris, Kentucky, and Clinton, East Tennessee, the furking points to go to Knoxville, in the direction of Virginia, North and South Carolina, and toward Loudon in the direction of Georgia, Alabama and Florida.

We find that the distance from Paris to Clinton, by existing routes, is 565 miles, while by the proposed route it is only 150 miles, showing a saving in distance of 415 miles, and of 55 hours 20 minutes in time, and in money, \$41 50 for each round trip. This wants no comments, but what remains a matter of great surprise is, that the Legislature of that intelligent and progressive people has defeated bills purporting to remedy this enormous and injurious condition of affairs for their own State, separated, as it is, from the South Atlantic States by those natural barriers, the Alleghany and Cumberland chains of mountains.

This statement is made in reference to the roads as they *now are*. A direct road to Chattanooga, would remedy a large part of this difficulty, but it would not the whole by any means. For the sake of a direct road to South-western Virginia, North and South Carolina, and the perfection of the great

axial line, it is, and will remain true, that we ought to have a direct railroad from Paris, nearly on the line, pointed out in the Rome report, and we say that such is the necessity of it, that let what will be done on other routes, *the direct line to the South, and the South-east will be made.* The scheme of the great Mackinaw, Cincinnati and Southern road will be made, and when made, will be the greatest work ever accomplished for Cincinnati and the South. We trust that capital will soon be found to accomplish it, and it is one of the really good schemes, planned for the future development of the interior.

Cincinnati Connection with Chesapeake & Ohio Railroad.

GALLIPOLIS, July 11th, 1870.

T. WRIGHTSON, Esq.,

Editor of the Railroad Record.

I take the liberty of addressing you a few lines on railroad matters. Last February, some of our citizens, in connection with Hon. H. S. Bundy, of Jackson county, and some citizens of McArthur, Vinton county, applied for and obtained a certificate of incorporation for the Gallipolis, McArthur & Columbus Railroad Company, their object being to run a road from here up the Raccoon valley to McArthur station, on the Marietta R. R., thence to the town of McArthur, thence to Logan, in Hocking county, and then connecting with, and running to Columbus, on the Columbus and Hocking Valley R. R. The company has donated to it by deed of gift, the old road bed of the Scioto and Hocking Valley R. R., from McArthur station to Logan, 26 to 27 miles, on which I am told there is about \$200,000 worth of grading and masonry done many years ago. I passed over it in May last, and found the embankments and masonry, with some slight exceptions, in good condition throughout. We opened books at different points along the line, on the 20th June for subscriptions, and we are steadily adding to the list. I had a conversation with Mr. C. on Saturday evening, he informed me that your citizens were agitating the question of a road from Cincinnati via Hillsboro to Gallipolis, to a connection with the Chesapeake and Ohio road at this point, and at same time wanting it to pass through the coal fields back of us, and further said your citizens talked of building a road from your city to Hillsboro, that would be shorter than the road now built between these two points. I have had some correspondence with Col. W. H. Trimble, of Hillsboro, (who is the leading man in their railroad enterprise) and have advised him fully of what we are doing, and suggested to him the propriety of joining us with their road at the Keystone furnace, on little Raccoon, 22 miles from here, at which point he would be in the midst of the coal fields, and could pass over our road to this

point, to a connection with the Chesapeake and Ohio road, and over the other end of our road to any point of the coal fields of Jackson, Vinton, and Hocking counties. To this suggestion he replies that they cheerfully acquiesce in our plans, and will join us as suggested above, at the Keystone furnace. I understand from Mr. Trimble that the work on their road bed from Hillsboro to Jackson, is about two-thirds (if not more) done, and that they are busy soliciting subscriptions and getting the right of way. Now if we can get our road finished to the Keystone furnace, it will be to the Hillsboro company next thing in importance to building that much of their road for them, then if Cincinnati will aid the Hillsboro people in building their road to the Keystone furnace, and aid us with a moderate subscription to our road to the same point, they will make sure of a connection here with the Chesapeake and Ohio road, and will have access to a line of 40 miles through the richest coal and iron fields of Ohio, via our road, and from Keystone to Cincinnati, have a road of lighter grades, and shorter line than any other coal carrying road that enters your city; and consequently, can deliver you coal at less price than any other road coming into your city. Then they would have the shortest and best road from your city to the Atlantic seaboard in the country, and shortest in miles, and best, because it would have much less grades than any other through road yet projected from your city to the seaboard. Will your city take hold of this enterprise, which must be to them of vast importance, or what do they propose to do in this direction? If not asking too much, I would like to hear what (they) Cincinnati propose to do, or what they would like to do. We consider our route from here to Logan a very favorable one, having no grade over 39.60 per mile, and only a few miles at that much—over one-third of the distance level. At times of a scarcity of coal in your city, your citizens would find the Hillsboro road almost invaluable to them; then this coal business, with its Eastern connection, must make it a very profitable road to the stockholders.

Respectfully yours,

W. H. LANGLEY.

[It is very difficult, indeed, to tell what Cincinnati will do, (we could readily tell what Cincinnati ought to do) in reference to any railroad enterprise that requires money from her citizens. If a *series of resolutions* will be of any service in the construction of the connecting link between Cincinnati and the coal fields, and iron beds of Southern Ohio, and that would give her the *shortest* and *best* route to the sea, and the *best* connection with the Chesapeake and Ohio Railroad, we feel warranted (without having consulted either body), to pledge the cordial support and hearty sympathy of the "Chamber of Commerce," the "Board of Trade," and the honorable the "City Council," together

with a "bravo" from every property holder within the corporate limits. Collectively, as a city, you are aware they can constitutionally do nothing, although perfectly willing; but individually, although perfectly able, and it is confessedly to their interest to do all that might be asked of them, yet, they are inflexibly and determinedly unwilling to aid a single groat. If the success of your enterprise should rely on any other aid than that which I have suggested, I fear that, like a dozen other projects, now being pressed on their attention,—candidates for substantial assistance,—that like them, it will be doomed to disappointment. But the resolutions we can pledge to you without fail, especially if you will have them prepared before you come here. If we had about a score of *first class* funerals, there is reason to suppose that different results might be attained. Till then we are without hope.]

Virginia Notes.

EDITORIAL CORRESPONDENCE.

NORFOLK, VA., July 12th, 1870.

RAILROAD RECORD:—I passed down the Potomac from Washington in a night, so comfortably that I really knew nothing about it. Slept all the way. But as I had made the same trip by daylight, and there are few, if any, changes upon this classic stream, I probably lost nothing.

The morning broke upon us as we were rounding Smith's Point, and passing gently into Chesapeake Bay. It was one of those lovely morns, that a healthy man, risen from a refreshing rest, and looking out upon a beautiful landscape, always remembers. The sun, clear and round and red as a great globe of fire, had just lifted itself out of the sea. The bay and the ocean before us was still and smooth as a mirror, and reflected with great beauty the rays that betokened a fierce day. There were innumerable little boats along the coast, and far out toward the horizon; and great ships too, with their wings of canvass spread to catch the breeze, that seemed to rest motionless upon the waters as though they were a sea of glass. Our own steamer moved steadily along with regular clank of machinery, and splash of the great wheels at her side cutting the crystal surface, and leaving it broken and disturbed in her wake.

Thus we sailed by the Northampton coast, passing the mouths of the Rappahannock and York rivers, beneath the frowning cannon of Fortress Monroe, touching for a moment at old Point Comfort, thence out of the bay into the famous Hampton Roads, and across this charming sheet of water safely into the landlocked harbor of Norfolk.

In passing across Hampton Roads, one is inclined to wonder why this has not become the great harbor of the continent, and upon

some of the beautiful points of land upon its margin, has not arisen great commercial cities. Here is a harbor large enough to hold the navies of the world, with fine anchorage, and deep channels leading from the mouths of the rivers that flow into it to the open sea, and retreats and shelters for the smallest crafts, and from every storm; to say nothing of the genial climate that keeps it unlocked from ice, and its contiguity to the ocean that renders it easily and safely approachable at all seasons of the year, and under all circumstances.

But there is no use speculating upon this question. Although the first settlers of the continent found their way across this sheet of water, and up the James, and the first church ever built in the country was at Jamestown; and the British government by grants of farms, encouraged the development, as was supposed, of this section, and back of this great estuary lies a vast interior teeming with all the industrial resources that sustain a dense population, and support large cities; there is no place upon these shores that rises to the magnitude of a first class interior town. The old civilization did not encourage their growth—the new may, probably will, and before long the question may be solved and the wonder cease.

Norfolk is making great efforts to become the commercial city of the South. And that she will be one of the great cities that is to be built upon Hampton Roads, there is not much doubt. Already her population reaches upwards of thirty thousand—she has, perhaps, the best riding for ships of all classes—railroad lines reaching far into the interior, and others projected, that she is encouraging to completion, that will place her in connection with the South-west, and give her control of an extensive and varied traffic that must increase her population largely, and add immensely to her wealth.

Her people are alive to their interests in these matters, and they are planning and scheming, and talking as largely as the deizens of some of our Western towns.

Recently the three railroad interests that made up the line from Norfolk to Tennessee, have been consolidated, and under the direction of Gen. Mahone, will be worked as far as possible in the interest of that place.

From this line at Lynchburg, a road is to be made to Clifton Forge, thus intersecting the Chesapeake & Ohio road, and with a view to bring the business of this line to the sea front at Norfolk.

Another scheme on foot as a feeder to this city, is a railroad skirting the North Carolina State line, and crossing the Virginia and Tennessee consolidated road at Bristol, thence into Kentucky, and making connections with Louisville and the cities of the South-west.

This is the Norfolk & Great Western

scheme, that is to be the Pacific line between that city and San Francisco.

The people are evidently in earnest about this work—they propose to contribute a million of dollars at once, and say that the project is sustained along the entire line by very large contributions of land and money; and that they are going to make it without doubt.

They have other less ambitious railroad schemes on hand than this, but of great value, and that are necessary as a system of thoroughfares to the interior, and the full development of this favored point.

Among other improvements contemplated at Norfolk, is that of supplying the place with water. Although in the midst of water, there is not a drop to drink except what is caught in cisterns. And this has more than once proved so short, that cargoes of fresh water have been brought here from Baltimore and sold at ten cents a pail full.

To remedy this, (an absolute necessity,) it is proposed to bring the Drummond lake here from the midst of the great dismal swamp. It is distant about twenty miles, but high enough to afford a good head, and accessible at a reasonable cost. The estimate is about half a million dollars. The water is said to be clear, cool and healthy, though so highly colored that it might readily be mistaken in a glass, for light red wine.

Business seemed to be brisk on the streets, in the market, at the railway stations, and on the wharves. The tracks for a couple of street railroads are down, and some time this month there is to be a formal opening of the routes.

I should think Norfolk would be a good place for a large eater to live in. There is such a hountiful supply of all kinds of vegetables and fruits, and the finest fish that are caught in the sea, and shell fish of every variety, and all very cheap. Indeed, this is one of the characteristics of this whole section of country. It is the source of vegetable and fruit supply to the great Atlantic cities, weeks before their local crops are marketable. I understand this traffic is very profitable and capable of great expansion.

Like all points that have "a brilliant future," real estate owners in Norfolk appreciate their possessions, and talk about corner lots, and water front in connection with thousands of dollars per foot. In this respect there is considerable inflation, and it would be well to make some reduction in these prices so as to encourage purchasers from abroad, to give them *part* at least, of the prospective value of such property.

I found considerable building going on in and about the city. No important structures, but a number of neat dwelling houses, principally of brick. A good indication of thrift.

Steamers ply regularly from here to and from New York, Baltimore, Washington, Richmond and Hampton, and make excellent time.

The business men are active and keen, quite polite to strangers, ready to show them about, and point out all places of interest. All the leading men I came in contact with, expressed a great desire to have northern men, and particularly those with capital come among them. They are *big* with hope that this will be the counterpoise upon the continent to New York. And as they are very clever fellows, and are trying to do something, and really have a good thing, I did all I could to encourage them to hope on, fully convinced, that though Norfolk may not injure New York much, it will benefit the South, and Virginia in particular, a great deal.

CELINA.

Atlanta and Richmond Air-Line Railway.

The meeting of the stockholders of the Georgia air-line railroad and the air-line railroad in South Carolina, on the 28th of June in Atlanta, Ga., again calls to mind the great line which is now being constructed between Charlotte, N. C., and Atlanta, Ga., a distance of two hundred and twenty-five miles. At this meeting the two companies were consolidated under the name of the Atlanta and Richmond Air Line Railway Company. The management will consist of a President and 12 directors. In the election which took place for officers of the consolidated line, Col. A. S. Buford, the President of the Richmond and Danville and Richmond and York river railroads, and who for three years past has been in charge of this line (having organized the enterprise,) was elected President by acclamation; Gen. A. Austel, of Atlanta, first Vice President; and R. Y. McAden, Esq., of Charlotte, N. C., second Vice President. It has been determined to prosecute the work vigorously from both termini, viz., Atlanta and Charlotte.

Between six and eight hundred hands are now and have been for months past engaged on the Georgia portion of the work, and a much larger force is being organized for the work in North and South Carolina. The clouds which hovered over this important work have been dissipated, a contract having been made with an experienced and energetic contractor of New York, Mr. P. P. Dickinson, to complete the whole line from Charlotte to Atlanta in two years.

The President in his address to the stockholders of the consolidated company, said that he expected during the year 1872 to run a train without change from the waters of Chesapeake bay to Atlanta, Montgomery, Mobile and New Orleans. The greatest enthusiasm is manifested in all the counties of Georgia and South Carolina through which the air-line is expected to pass, and all are subscribing liberally to the work. The line is to run from Charlotte north of Yorkville, via Spartanburg and Greenville, S. C., Gainesville, Ga., &c., to Atlanta, two hundred and twenty-five miles. The road is now in operation from Atlanta eastward in Georgia twenty miles, and thirty-three miles more in that State are under construction, which it is expected will be completed by January, 1871.

B. Y. Sage, Esq., the chief engineer of the air-line, is now in Charlotte, N. C., making his arrangements for a vigorous prosecution of the work; and as all the capital required is now ready, it is a foregone conclusion that the road will be built in the time specified.

The importance of this great road can not be set forth in the space we can devote to it. Immediately on its completion the immense travel between New York and New Orleans will fall into this channel, as it will be the shortest and most expeditious route between Richmond, Baltimore, Philadelphia, New York, Boston and Charlotte, Atlanta, Mobile, Montgomery, &c. It passes through a magnificent country; healthy and well watered, rich in mineral productions, and with some of the most lovely scenery on this continent. The Richmond and Danville road, in connection with the air-line, is destined to be the great thoroughfare between the North and South.—*Richmond Examiner.*

Chesapeake and Ohio Canal.

Within the month of June there were cleared from the port of Cumberland 838 boats laden with coal, carrying an aggregate of 91,564.04 tons. Of this, 90,202.09 tons went through; 1,015.04 tons to Antietam Iron Works, 193.17 to Hancock, and 152.14 to Shepherdstown. There are now 400 boats, generally well stocked and equipped, engaged in the transportation business, largely increased wharf and loading arrangements, and the Canal throughout the month has been in first-rate boating condition. With these facilities twenty-five per cent more coal could have been readily moved forward, had the state of the market warranted the company in increasing their shipments to that extent. The shipments for the month, by companies and individuals, were as follows:

American Company.....	19,265.00
Borden Company.....	11,965.18
Consolidation Company.....	18,443.08
George's Creek Company.....	3,085.13
Hampshire Company.....	3,885.08
Maryland Company.....	26,323.07
Individuals and firms.....	9,595.16

91,564.04

The coal shipments for the season, compared with last year are as follows:

	1869.	1870.
March	3,080.00	2,834.14
April	77,382.10	76,200.19
May	84,110.07	98,675.18
June	90,636.08	91,564.04

255,209.05 269,275.15
Increase..... 14,066.10

EAST ALABAMA & CINCINNATI R. R.—This is the name of a company whose title has lately been changed under the statute law of Tennessee. Its maiden name was rather cumbersome: the "Eufala, Opelika & Guntersville Railroad Company." The *Chattanooga Times* says: "It is designed as a direct route by way of Jacksonville or Oxford, Gadsden and Guntersville to Nashville, and by the Cincinnati and Chattanooga railroad to Cincinnati. The distance saved between Opelika and Chattanooga by a connection with the Alabama & Chattanooga Railroad will be at least 35 miles over the route by Atlanta."

The *Gadsden Times* also says of this road: "We learn from Col. Pennington, President of the East Alabama & Cincinnati Railroad, that instead of constructing a railroad parallel to the one already graded from here to Attala, he has secured the old grade, and that Kyle & Hollingsworth now have a number of hands getting cross ties, and that the road will be built and in running order as soon as the ties can be procured and the track laid. He will then push vigorously on in the direction of Jacksonville or Oxford."

Railways and the Sea.

WHAT COMMERCE OWES TO BOTH.

How much commerce owes to the sea can scarcely be computed. What London, in all its magnificence, or Liverpool with its splendid commerce would be to-day or whether they would ever have been at all, under geographical conditions that would not admit of their becoming maritime cities, need hardly be a matter of conjecture. Were New York, by some terrestrial disturbance, cut off to-morrow from immediate connection with the sea, the whole complexion of the great metropolis' history would be changed. Her quays no longer touched by the tide, and strangers to the high ships that make commerce as grand and catholic as the globe, would tell in silence and solitude the tale of her undoing, of her inevitable decadence, and a future buried in comparative oblivion.

Next to an advantageous position upon the seaboard for affording harbor and landing accommodations to shipping, may be ranked a similar position with respect to the navigation of a great interior water course. New Orleans, for instance, is doubly favored in the kindly geography that gives her both these advantages. It is mostly her own fault that they have not been turned to larger account, in the advancement of her prosperity; that she has indolently pleaded the favors of nature as a pretext for indifference to the helps of art. But this remark we merely throw out in passing.

It is charged to the account of our railway system that it has a tendency to drain off commercial elements from interior cities to centers of trade and capital on the seaboard, and that in the face of this fact, any of these cities are to succeed in securing greatness in the future, they will do so by a sagacious and vigorous policy addressed to the development of resources of interior navigation. No doubt it is true that New York, Philadelphia and Baltimore do, through the excellent railway facilities afforded by their four or five powerful trunk lines to the west, invade and despoil more and more every year the commercial domains of western cities. But has the west any possible means of confining this traffic within itself? Can the commercial prosperity of Chicago, Cincinnati or St. Louis be augmented by cutting off their present facilities of railway connection with the seaboard?

Chicago, the most flourishing inland city on the continent, has more of these facilities than any other, and is still anxious for more, because, as her shrewdest commercial men will tell you, it is to them this western metropolis owes its greatness. Even St. Louis, with that great inland sea, the Mississippi river, flowing past its gates, is, like New Orleans, far behind, while Cincinnati and Louisville, both possessing better railway facilities, have a live, growing commerce. In fact, to satisfy the most skeptical mind whether railway communication with the seaboard does or does not benefit inland cities and inland districts, we have only to draw comparisons. It is not the narrow exclusiveness in trade that promotes prosperity, but the uniting of land and sea in the grand freedom of commerce upon principals as broad as the universe.—*Railway News.*

A batch of 150 Chiuaman have passed through Omaha on their way to Algiers, Louisiana, where they are under contract with the Hon. Oakes Ames and ex-Governor Gardner of Massachusetts.

Railroad Meeting.

An earnest meeting of the citizens of Highland, Pike, Scioto and Lawrence counties was held in Portsmouth, July 20. Hon. John H. Hughes, of Highland, was appointed Chairman, and James W. Newman Secretary. Delegates from all the counties were present, and also a majority of the incorporators of the projected Cincinnati and Gallipolis Road.

The following was adopted:

"WHEREAS, It is the deliberate opinion of this convention, after a careful consideration of all the proposed routes for a railway to connect the western terminus of the Chesapeake and Ohio Railroad with the City of Cincinnati and the Northwest, which have been projected through Ohio, the unfinished line of railroad from Hillsborough to Piketon, and from thence down the Scioto River to Portsmouth, and thence up the Ohio, through Ironton to the terminus of said Chesapeake and Ohio Railroad, presents at this time and in view of all future interests, among the most practicable, feasible and direct lines of railway which is possible of accomplishment through the South: therefore

"Resolved, That a committee of three be appointed to report an application for a charter to this meeting."

The incorporators of the Cincinnati and Gallipolis road accepted the resolution, believing the new route the most promising to reach the western terminus of the Chesapeake road.

The Committee reported a charter at an adjourned meeting, this evening, designating two incorporators from each county. The same was adopted.

The meeting was addressed by Messrs. Thompson and Trimble, of Highland; Campbell, of Lawrence, and Hutchins, Moore, Glover and Duncan, of Scioto.

The friends of the enterprise are enthusiastic, and confident of its success.

A meeting in aid of the movement is to be held in Ironton to-morrow evening to be addressed by Colonel Trimble and others.

Cost of Labor and Subsistence in the United States.

A most valuable document on this subject, of about 75 pages, prepared by Mr. Edward Young, Chief of the Bureau of Statistics, for the Special Commissioner of the Revenue, is now in type and nearly ready for distribution. It contains—

I. **FACTORY LABOR**—Giving tables of the average weekly wages paid in the various industrial establishments of the United States (from "Agricultural Implement Factories" to "Woolen Mills,") in the respective years 1867 and 1869. The tables are the result of inquiries made of the proprietors of the respective establishments. This division embraces about thirty pages.

II. **MECHANICAL LABOR**—Several pages are devoted to the wages paid in the leading mechanical employments ("from blacksmiths" to "wheelwrights") in every State and Territory in the Union, giving the average daily rates with board, and without board, in the respective years 1867 and 1869, and a recapitulation by sections.

III. **FARM AND OTHER LABOR**—About 12 pages are devoted to this branch. The average daily and monthly wages of both experienced and ordinary hands, including farm and other common and domestic labor, in summer and in winter, with board and with-

out board, in each State and Territory of the Union, are given for the respective years 1861 and 1869, also a recapitulation by sections.

IV. EXPENSES OF LIVING, &c.—To complement the preceding tables of wages, the average cost of provisions, groceries, fuel, and leading articles of dry goods, as well as of house rent and board, are given in each State and Territory, for the years 1867 and 1869—also, a recapitulation by sections—the list embracing 59 distinct items; a statement showing the average weekly expenditures of workingmen's families in the manufacturing towns of the United States; and another giving the average income and expenditures of similar families in Belgium.

V. THE COST OF DWELLINGS—To ascertain whether the high rents paid by workmen were justified by the increased cost of building, inquiries were addressed to leading builders in various cities and manufacturing towns, asking the cost in 1861 and 1869 respectively, of the various materials, as well as of labor, employed in the erection of dwellings for workmen. The result shows the increase in the cost of materials to have been 58 per cent., of labor, 103 per cent., and of building lots, 147 per cent.

Most of the above information was obtained by Mr. Young through the assistant assessors. The collation and tabulation of a vast number of returns, involving great labor, caused delay, and prevented their accompanying the last report of the Special Commissioner of the Revenue, to which they now appear as a supplement.

The following comparison of the average weekly wages paid to persons employed in woolen mills, in England and the United States, in the years 1867 and 1869 respectively, is taken from the table on wages in woolen mills:

Average wages (gold values)			
United States, 1869.		England, 1867.	Perc'ge in favor U.S.
Occupations.	1869.	1867.	
Wool sorters...	\$8 35	\$6 75	19.16
Wool washers...	6 35	5 50	13.38
Dyers.....	9 56	5 50	42.46
Overseers.....	12 76	9 00	29.46
Pickers.....	5 40	5 00	7.40
Carders.....	4 67	3 85	17.56
Spinners.....	8 62	6 00	39.39
Warp's & beam's	6 71	5 63	16.09
Reelers.....	3 78	2 75	20.25
Weavers.....	6 06	4 67	22.93
Burlers.....	3 78	2 48	34.38
Fullers.....	6 75	5 75	14.81
Dressers.....	6 22	5 50	11.57
Finishers.....	7 47	6 00	19.67

The work is comprehensive in scope and minute in detail, the object of Mr. Young having been to make as complete an exhibit as possible of the present condition of industry and the industrial classes. Both in collecting and collating the information it contains, every precaution has been taken which could contribute to strict accuracy. The report will, therefore, be of great value to the Legislator and Statistician, as a reliable work of reference, covering details nowhere else to be found. It would also be a most useful book for general circulation, and especially so among the classes in European nations from which emigration to our country is chiefly drawn, since it would not only enable the intending emigrant to compare the general advantages of the United States with those of his own country, but would indicate to him the particular State or section in which his own occupation receives the most liberal remuneration.

In the preparation of this work, Mr. Young has simply presented facts and figures, leaving it to the reader to draw such inferences as the data before him seem to warrant.

It is hoped that a large edition will be ordered by Congress.—*Register*.

Steel for Boilers, etc.

That locomotive fire-boxes made of steel have been run for eight and nine years without necessity of repair, and that the same material used for steam boilers has a much greater tensile strength, less liability to have its heat-conducting power diminished by clinging soot, cinder and debris, and capability of being made thinner to withstand a given strain, point to the ultimately extended adoption of steel for the purposes indicated, and render of interest and importance anything relating to the production and use of the highest quality. The testing of the metal, therefore, has naturally called out much ingenuity on the part of manufacturers, and it is now stated that, by simple means, the testing of American brands for this purpose is carried to a higher and more efficient degree even than in England. In other words, American steel is made capable of withstanding trials under which the British is found to give way.

This method of trial is known as the water test—as simple as its name would indicate—a sample piece of the "homogeneous" steel being heated to a cherry red, plunged in water to cool it, doubled short, and then, when cold, beat down close, without breaking. This, it is manifest, is as severe a test as the plates would be subjected to under any ordinary conditions in a fire box or boiler.

The quality of steel boiler-plate now available may be estimated from the tests of steel made by a Pittsburg firm not long ago. A plate of the usual thickness was first bent to an S-shape in a vise, then folded flat by a sledge, and then laid under the action of a three-tun steam-hammer, until the points of contact of the folds were scarcely perceptible to the eye. The ends thus sharply bent are stated to have shown not the slightest signs of fracture, and the essentials of tensile strength and toughness appear to have been indicated in the highest degree. A more practical illustration of the resisting power and ductility of the material was given, not long ago, in a cast-steel boiler made at the Fort Pitt Iron Works of one-quarter inch plate. Carried to a pressure of seven hundred and eighty pounds, the boiler bulged, or enlarged slightly, and at eight hundred and twenty pounds—the pressure at which the boiler gave out—the plates, though somewhat stretched, remained intact. The experiment was not, as we understand the report, brought to an end by any rupture of the plates or fault in the material, but by the shearing off of the double row of rivets by which, at one of the seams, the plates were joined.—*Artisan*.

[We have seen samples of these folded plates of steel at the Board of Trade rooms, and they presented the appearance described.—*Ed. Record*.]

Lead fuses at 600°, tin at 442° and bismuth at 476°. Yet an alloy known as fusible metal, composed of 5 parts lead, 3 parts tin, and 8 parts bismuth, fuses at 203°. A spoon made of it will melt in hot tea, and it can be melted in a paper crucible over a candle.

American Marbles.

The *Agricultural Review*, in discussing the subject of black marble and its treatment in architecture, says that at the present time the wealth in marble possessed by this country, instead of decreasing with the great demand made upon it for building and ornamental art purposes, is developing still more intrinsic value in the recent discoveries of colored marbles of a superb quality, prolific Vermont has contributed to our national resources. In the rooms of the Royal Institute of British Architects, London, there are now to be seen specimens of American colored marbles which have called forth the admiration of all observers. Our present object, however, is to call attention not to the white or the varicolored, but to the black marble, which in its own way, confers so much benefit on art by the very force of contrast it creates. It is generally of a fine texture, (especially that which is very deep black), but it is rare to find it without calcareous spar in veins through it. The best quality occurs in beds of from three to eight inches thick; but some beds are thicker. It is tough, and contains a good deal of carbon, which imparts the color. It is greatly valued for inlaying, and is extensively used for vases, pedestals, chimney pieces, etc.

It is occasionally ornamented by etching and engraving, in which processes the polished surface is removed, and the brown color of the rough marble exposed. Powdered white lead is sometimes rubbed into the etched surface, to increase the effect. The French have a method of ornamenting marble in this way by etching with acids deeply into the marble various designs upon a properly prepared bituminous ground. When the corrosion has gone sufficiently deep, the cavities are filled up with hard colored wax, so prepared as to take a polish equal to that of the marble when cleared off. Drawings thus made on black marble, and filled in with scarlet wax, after the manner of Etruscan, have a fine effect, and are used for tables, paneling, etc. They have a method in Derby, England, where this art is carried on to a considerable extent, of exposing the brown color, without destroying the polish, the effect of which is more durable than ordinary etching.

Rosewood marble, so called from its marking resembling that of rosewood, is extremely hard and of close texture, being next in these respects to the black variety. The beds are of considerable thickness, but the most beautiful part of the marble is only about six inches thick. The *russet* or *birdseye* marble takes its name from its color and appearance—the shades varying from light gray to brown. It contains numerous minute embedded or encrinal fossils, and is found in layers of from six to eighteen inches in thickness.

As yet, we believe there has been but one quarry of black marble worked in this country, namely, that of the Mosquito Valley, near Williamsport, Pa., which is a very compact, excellent material, but until very lately effort to polish its surface proved a failure. We, however, have now on our table, a highly creditable specimen of polished black marble from the quarry just named, and we entertain a strong hope that black marble in abundance will be found native to our soil, and worthy of a distinguished place in the art-materials of our country.

The largest raft ever on the Mississippi arrived at Alton, in tow last month. It contained 2,000,000 feet of lumber, and covered three and one-half acres.

Public Debt Statement for July 1.

The following statement of the public debt was received July 2:

DEBT BEARING INTEREST IN COIN.

Bonds at 5 per cent.....	\$221,589,300 00
Bonds at 6 per cent.....	1,886,361,400 00

Total.....	\$2,107,950,700 00
Interest.....	\$49,647,632 38

DEBT BEARING INTEREST IN LAWFUL MONEY.

Certificates at 3 per cent...	\$44,545,000 00
Navy Pension Fund at 3 per cent.....	14,000,000 00

Total.....	\$59,445,000 00
Interest.....	487,993 57

Debt on which interest has ceased since maturity.....	3,647,367 35
Interest.....	472,500 57

DEBT BEARING NO INTEREST.

Demand and legal tender notes.....	\$356,108,256 00
Fractional currency.....	39,878,684 48
Certificates of gold deposited	31,517,120 00

Total.....	\$430,532,060 48
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Total amount outstanding..	2,601,675,127 83
Interest.....	50,607,556 52

Total of debt, principal and interest to date, including interest due and unpaid...	\$2,652,282,034 35
Amount in the Treasury:	

Coin.....	112,776,048 88
Currency.....	28,945,037 19

Sinking fund in United States coin, interest bonds and accrued interest thereon.....	37,665,191 63
Other United States coin interest bonds purchased, and accrued interest thereon.....	86,537,776 91

Total amount in the Treasury.....	\$265,924,084 61
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Debt, less amount in the Treasury.....	2,386,358,599 74
Debt, less amount in the Treasury on the 1st ultimo.....	2,406,562,311 70

Decrease of debt during the past month.....	\$29,203,772 04
Decrease of debt since March 1, 1870.....	51,959,877 43

IMPROVEMENT IN PERMANENT WAY—Mr Griffin has lately presented a new system of permanent way in England, which, aside from the important consideration of first cost, seems to be all that could be desired. It is beyond doubt that on lines laid upon this plan enormous amounts would be saved both in tear and wear of road and rolling stock.

The rails appear upon the surface very much like those upon our American street railways. A vertical web, about one inch in thickness, projects downward about five inches below the center of the bottom of the rail. The supporting blocks or sleepers, about 3 feet long, and of six inch by five inch scantling, lie longitudinally, at proper intervals, on each side of the web and under the rail. The inner supporting block, being lower than the outer, admits of a form of rail that affords working room for the flange of the wheel as rail wears down at the top. The sleepers are bound firmly together and the rail held in

place by horizontal bolts passing through both sleepers and the web of the rail. The rail joints are held by wrought iron clips and double bolts. The gauge of the line is kept by means of T iron tie rods, cut and bent to suit, and attached at proper intervals. The advantages seem to be in permanence and smoothness. No spikes are used, there is no break of the upper surface of the timber employed and the rail takes its bearing immediately on the timber, and exhausts the bearing surface of which the timbers used are capable.

The sleeper pieces may be of oak, or other hard wood of enduring nature, which in lengths of about 3 feet of scantling, 6 inches by five inches, will cost less than longitudinal sleepers or even transverse sleepers.

Finally, although not exhaustively, the section of rail employed effects a saving of a fourth in weight of iron, and gives nearly, if not quite, double the wearing surface of the ordinary sections.

The *London Engineer* is of the opinion that "Mr. Griffin has made a valuable contribution towards the solution of the important problem as to what is the least costly, the firmest, safest and most durable permanent way."

THE CAUSES OF BROKEN AXLES.—In the late annual report of L. J. Fleming, Chief Engineer and Superintendent of the Mobile & Ohio Railroad, after saying that accidents from defects in machinery, except from broken axles had diminished, the following remarks on the causes and prevention of broken axles are given.

"The accidents from broken axles, principally under tenders, may be ascribed to two causes—the granulating effect of the heavy, rigid rail when laminated, and the very bad quality of metal of which axles are frequently made. Manufacturers generally believe there is no method of testing the quality without breaking the axle, and when accidents occur, they will be attributed to the effects of granulation from vibration and impact; and that there is no means of tracing them to the bad metal of which they are made. For some time past all new axles have been ordered of sufficient length to take a fracture from each end, and one or two of each lot have also been broken in the center. The result of these tests has been to return to the makers three fourths of those ordered during the past year. In future orders, the names of the makers will be required on each one, and the proper credit or blame will be given in the annual reports. The person who manufactures a bad axle, on which the lives of so many passengers depend, whether it is done intentionally or from the want of a proper knowledge of making it, is as culpable as the person who places an obstruction on the track to throw off the trains.

SPRINGFIELD & ILLINOIS SOUTH-EASTERN R. R.

—The *Shawneetown Mercury* publishes the following extract from a private letter from the Treasurer, Mr. Cutler, to the President, Mr. Ridgway:

"Everything is provided for the work in your county. Iron is being delivered from New Orleans and Covington; and six hundred tons are now loading on barges at Marietta, for Shawneetown. The Thos. S. Ridgway, a fine new locomotive, and cars, have just arrived at Flora, on their way to your place. I write Mr. Norris to-day to press forward the work, both track-laying and grading."

Railroad Items.

—Mr. Poor in his *Railroad Annual*, states that the tonnage of the New York roads for 1868 equaled 11,961,692 tons, or 3,625 tons to the mile, and the earnings of the New York roads for 1868 were \$13,142 per mile; Massachusetts, \$15,400 per mile; Pennsylvania, \$13,900; and Illinois over \$10,000 per mile. The average for the whole country would give an aggregate of \$400,000,000. The earnings per head of population equaled \$128. This is a low estimate, as it is only \$640 to a family of five persons.

—The Superintendent of the New Jersey Southern railroad has issued the following order: "Employees of this company are prohibited the use of smoking tobacco, in any of its forms, while on duty. Its use is a hindrance to, and is inconsistent with the duties of all employees, while to such as come in contact with the traveling public the order has additional force from the fact that to so many of the latter tobacco in any form is offensive."

—The receipts of the Mobile and Ohio Railroad for 1869 were \$2,115,286.93 against \$1,850,601.59 in 1868; increase, \$264,685.34; increase in the expenses, \$104,976.56; net increase in revenue, \$159,708.78. The road has resumed payment of interest on its bonds. The total issue of bonds is \$13,621,410; on Monday, December 31, 1869, \$10,083,643; deferred interest to November 1, 1869, to be funded, \$421,800; rate of interest, 6 and 8 per cent.; bonds payable in Mobile, New York and London.

—The building of many lines of railroad on the continent of Europe has materially affected the iron trade in England. It is said that the Cleveland and Tyne districts alone, in England, have orders from Russia to the amount of £3,000,000, for railway materials of all kinds, and that the North-eastern district is producing railroad material at the rate of 1,700,000 tons a year, and increasing its furnaces.

—The western terminus of the Lake Ontario Shore Railroad is Lewiston, on the Niagara River, connecting with the Great Western of Canada. The eastern end connects at Oswego with the Delaware and Lackawanna, New York and Oswego Midland, and the Rome and Watertown roads. The officers of the road are: Hon. Gerrit Smith, President; O. P. Scoville, Vice President; Luther Wright, Treasurer; Henry L. Davis, Secretary.

—It is stated that the Chesapeake and Ohio Railroad Company have purchased a large tract of land on the river-side at the point of intersection of the Guyandotte river with the Ohio, and extending down four miles. Upon this they will lay out a town, to be named Huntington, after the President of the road. The new bridge across the Ohio will be built there.

—It is rumored that the Union Pacific Railroad Company have leased one of the slate quarries in the vicinity of Cherryville, Northampton county, Pa., from which they intend to procure slate to roof such portions of their track as require protection from the snow.

—During the year ending March 31, 1870, there were 474½ miles of new railroad opened for traffic in France.

—The Ottawa correspondent of the New York *Tribune* gives, in round figures the intended cost of the proposed Canadian Pacific railroad, as follows: First and second sections, 2,060 miles, \$75,000,000; third section, 152 miles, \$18,000,000; the other portions, \$7,000,000; total cost, \$100,000,000.

—The Burlington *Hawkeye* says that the iron for the Burlington, Cedar Rapids & Minnesota Railroad is being rapidly delivered, and will continue to come forward until sufficient is at hand to complete the whole road to Waterloo. Track laying will commence at once.

—The Pemberton and Manchester road will be completed in a few weeks. It is eighteen miles long and makes the connecting link between the New Jersey Southern Railroad and Pemberton and Camden, thus affording a direct route from Philadelphia to Long Branch.

—There was consumed in the United States during 1869, 936,566 tons of railroad iron, of which 593,586 tons were manufactured in this country, and 345,000 imported from Europe.

—Baltimore is discussing an underground route for all railways centering in the city, the estimated cost of which will be over \$5,000,000.

—A new railroad is to be built from a point on the Delaware river, in Mercer county, New Jersey, through the village of Pennington to Millstone.

—A company has been organized in Montreal to introduce a steam omnibus. If we may believe the detailed reports of the excellent workings of the machine in Scotland, it is adapted alike for crowded cities and for country roads, is perpetually under control and neither frightens horses nor endangers human lives. The ease and rapidity with which it draws immense loads have been frequently described. It requires no rails, its wheels having tires of fifteen inches width, covered with four inches of vulcanized rubber. If as serviceable and free from objectionable features as reported, such machines would find more to do in this city than in all Canada.

—It is estimated that it costs 13 cents to produce a pound of cotton, against 16 cents just after the war. There is still a profit left of \$31 50 @ bale of 450 lb., or \$9,000,000 on a crop of 3,000,000 bales. This is exclusive of transportation to the seaboard and the charges of middlemen.

—The Florida planters this season are planting uplands instead of Sea Island cotton to an unusual extent. Seventy-six planters in Alabua county, who last year had 282 acres in uplands and 8,593 in Sea Island, have this year 5,419 acres in uplands, and only 1,866 in the other.

—The value of glue, that is the amount of pure gelatine it may contain, may be determined by precipitating this body with pernitrate of mercury, a standard solution of which tested with a known weight of pure gelatine may be employed.

OMAHA AND COUNCIL BLUFFS BRIDGE.—The sinking of the pneumatic tubes which are to serve as the foundation of this bridge was resumed last week, after a delay of about one year. It is understood that the work will be pushed vigorously hereafter until the bridge is built.



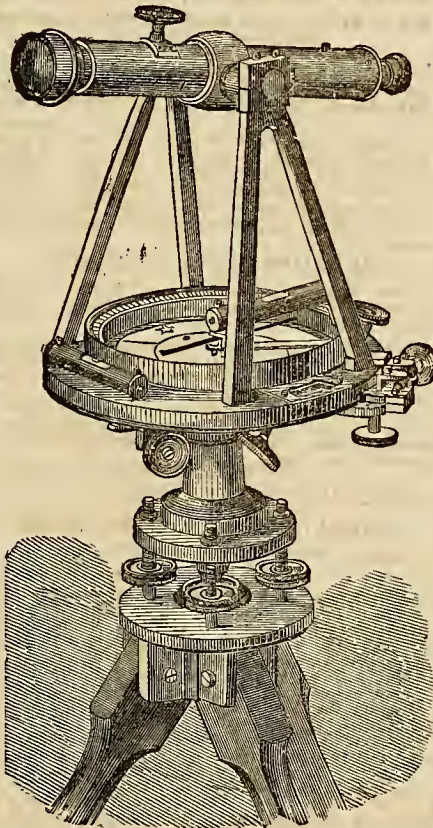
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Philadelphia and New York.

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BAGGAGE CHECKS via Baltimore & Ohio R.R.

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JANUARY 1st, 1870.

Cincinnati to St. Louis Without
Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph
Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois
Central Railroad.

TRAINS RUN AS FOLLOWS:

St. Louis, Evansville and Cairo
Mail..... 7:15 A. M. 10:55 P. M.
Osgood Accommodation..... 3:10 P. M. 8:45 A. M.
Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.
C. E. FOLLET, Gen'l Ticket Ag't, St. Louis, Mo.

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As in use on the National Despatch Line of Cars, adapted to two or more gauges. For information apply to

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1400 MILES under One Management. 860 MILES without Change of Coaches.

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NEW YORK, BOSTON,

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PITTSBURG, HARRISBURG

Philadelphia, Baltimore,

And Principal Points in

NEW YORK, NEW ENGLAND

—AND—

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This Railway extends from

CINCINNATI to NEW YORK, - 860 Miles.

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DUNKIRK to NEW YORK, - 460 Miles.

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ROCHESTER to NEW YORK, - 385 Miles

AND IS FROM

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TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth

and Hoadley Streets, by Columbus, O., time,

which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A.

M.; Urban, 10.29 A. M.; Galion, 12.57 P. M.;

Mansfield, 1.40 P. M.; West Salem, 2.50 P.

M. (Dine). (Sleeping Coaches through to

New York); Akron, 4.26 P. M.; Ravenna,

6.10 P. M.; Meadville, 8.00 P. M. (Supper);

Susquehanna, 7.55 A. M. (Breakfast); Tur-

ner's, 1.40 P. M. (Dine); New York, 3.00 P.

M. Connects at Ravenna with Cleveland &

Pittsburg Railroad for Hudson and Cleve-

land; at Elmira for Williamsport and the

South; at Binghamton for Cooperstown,

Albany and the celebrated summer resort,

Sharon Springs, and at New York with

afternoon trains and steamers for Boston and

New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana,

1.25 A. M.; Galion, 3.58 A. M.; Mansfield,

4.44 A. M.; West Salem, 5.59 A. M. (Bkfst);

Akron, 7.38 A. M.; Ravenna, 8.25 A. M.;

Meadville, 11.20 A. M. (Dine); Hornells-

ville, 6.19 P. M. (Supper); New York, 7.00

A. M. Connects at Mansfield with Pittsburg,

Et. Wayne & Chicago Railway for Pittsburg,

Harrisburg, Philadelphia, &c.; at Meadville

with Franklin Branch for Oil City; at

Elmira with Northern Central Railway for

Harrisburg and the South, and at N. Y. with

morning trains for Boston and N. England

cities.

New and Improved Coaches of the style peculiar to the

Broad Gauge, arranged for both Day and Night Travel,

are attached to this train at Cincinnati and run through to

New York, forming the **Only Line** running through

860 Miles without Change.

Boston and New England Passengers,

with their Baggage, are transferred FREE

OF CHARGE in New York.

The Erie Railway Company has opened a new

Ferry from their Jersey City Depot to the foot of Twenty-

third Street, New York, thus enabling passengers to reach

the city without the expense and annoy-

ance of a street car or omnibus transfer.

The scenery along the entire route of the Erie

Railway is of the most picturesque and beautiful character.

Admirers of Nature's beauties, in a daylight journey over

this line, will find in its ever changing landscapes sub-

jects of continual admiration and interest.

Baggage Checked Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY.

Which can be obtained at the Company's Offices in Cin-

cinnati, 80 West Fourth Street, (15 Vine St., 4 Burnet

House, and foot of Broadway, (Spencer House Block),

and at all principal Ticket Offices in the South and

South-west.

W. B. SHATTUCK,

General Southern Agent.

W. M. R. BARR,

Gen'l Pass'r Ag't.

Best Route to St. Louis and Chicago

INDIANAPOLIS,

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—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,

North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 pm
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.0 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Sat-

urdays.

VIA WHITEWATER VALLEY DIVISION.

	Leave.	Arrive.
Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.30 pm	9.3 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House

Office, corner of Third and Vine; River Office, corner of

Walnut Street and River; and at Depot, corner of Plum

and Pearl Streets. The splendid Passenger Depot of the

I. & C. Railroad is about a mile nearer the business center

of the city than the Depot of any other railroad, and with-

in a few squares of the Postoffice and principal hotels and

Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7:40 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:40 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:40 A. M.
Lima Fort Wayne & Chicago....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:25 P. M.
Sandusky, Cleveland & Buffalo....	6:30 P. M.	10:25 P. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond....	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	10:25 P. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do	6:50 A. M.	6:50 A. M.

Trains run **SEVEN MINUTES FASTER** than Cin-

cinnati time.

For all information and through tickets, please apply at

the old office, south-east corner of Broadway and Front; Burn-

et House Office, corner Vine and Baker streets, and at the

respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

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Omnibuses call for passengers.

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The PITTSBURG, FORT WAYNE & CHICAGO RAIL-

ROAD, in connection with the Cincinnati, Hamilton &

Dayton, and Little Miami Railroads, still continue to trans-

port produce and merchandise between Cincinnati and

Pittsburg, Philadelphia, Baltimore, New York or Boston,

and all Eastern points with the greatest promptitude and

dispatch.

For Rates, Bills of Lading, or any information desired,

shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent,

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LOUISVILLE & CINCINNATI**SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or

Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO

Louisville, Nashville, Memphis, New

Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Morning Mail.....	7.35 A. M.	2.30 P. M.
Evening Express.....	7.15 P. M.	3.45 P. M.
Night Express.....	11.15 P. M.	5.00 A. M.
Walton Accommodation.....	4.00 P. M.	9.35 A. M.

The 7:35 A. M. train runs daily.

The Low Fare Season and Commutation Tickets, good on

the Walton Accommodation, offer great inducements to the

citizens of Cincinnati and Covington who wish to pur-

chase country residences or small farms for gardening.

This train leaves late in the afternoon, and arrives early

next morning, giving all day to attend to business. For

further information as to routes, low fare, &c., please apply

at No. 1 Burnet House, or Dept. Covington, Ky.

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Passenger and Freight Depot in New York, foot of Lib-

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with the Lehigh Valley Railroad and its connections,

forming a direct line to Pittsburg and the West, without

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ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago,

Cincinnati, St. Louis, etc., with but one change of cars.

Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as

follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk,

Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe

&c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg,

Water Gap, Scranton, Kingston, Pottsville, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch

Chunk, Wilkesbarre, Reading, Columbia, Lancaster,

Lehigh, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk

and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—Express—Stopping only at the princi-

pal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and

Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for

Easton, Allentown, Harrisburg, and the West without

change of cars to Cincinnati or Chicago, and but one

change to St. Louis. Connects at Harrisburg for Erie and

the Oil Regions. Connects at Junction for Stroudsburg,

Water Gap, Scranton, &c. Connects at Phillipsburg for

Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Satur-

days) for Easton, Bethlehem, Allentown, Reading, Har-

risburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars

to Pittsburg and Chicago. Connects at Junction with

Delaware, Lackawanna and Western Railroad for all sta-

tions to Lehigh. This train will be run to Easton on

Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton

Allentown, Reading, Harrisburg, Pittsburg, and the West

—connects at Harrisburg with train for Williamsport, Erie

&c.

Sleeping cars through from Jersey City to Pittsburg

every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15

8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10

3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:15,

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, JULY 28, 1870.

PUBLISHED EVERY THURSDAY MORNING.

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Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Propr's.

And its Connections.

Some writer in the *Cincinnati Times* has made a dissertation on the wonderful sagacity of the Vanderbilts in making the Short Line route; the immense benefits to Cincinnati, and the immense resources and benefits of the New York Central, and how we ought to welcome the enterprise. Now, all this is well enough, in regard to all but the sagacity! The real fact is, that the New York Central, up to within a short time, has been totally deficient in sagacity—more than that—deficient in duty to their own stockholders. It has been asserted without contradiction, till within a couple of months, that the Vanderbilt interest of the New York Central, utterly disregarded Cincinnati, and held that it was their business only to continue the Lake Shore road to the North-west. We knew very well that such a position was folly, and they would be compelled to abandon it. They have abandoned it, and now are seeking an independent route into Cincinnati. Have they got it; or, will they get it? It seems to us, that when they have done all they propose to do, they will be very nearly where they were before. If they must have an independent line into Cincinnati, why do they go over the Baltimore road? The Baltimore road is the greatest competitor either of the New York lines have. Baltimore is the nearest point on tide water by rail; and from Baltimore to

New York, is but 180 miles. Leaving these roads, however, to manage their own interests as they please, let us look a little into the effect of these new enterprises on Cincinnati, and the interests of the Central-west.

1. Why, at this late hour, have the New York roads taken such a sudden interest in the routes to Cincinnati? If we look at it a little, we shall see that it is *necessity*, not sagacity, which has instigated these movements. There ought to have been sagacity enough in the great New York corporations twenty years ago, to have seen that, as Cincinnati was the central point in the Ohio valley, and the Ohio valley must necessarily be crossed to reach the South and South-west by rail. New York, if she meant to be a successful competitor for the trade of the South-west, should provide early for a good route to Cincinnati. It is quite astonishing she did not see this. Better late than never, is a proverb the New York Central has just learned, and we are glad of it; for, with general competition for the trade of the South, through Cincinnati, trade will be increased, and freights reduced, A "looker on in Vienna," may ask why this great stir now about getting to Cincinnati? In regard to the New York Central, the reason is very obvious. For a long time the New York Central had virtually the command of a route to Cincinnati, via the Cleveland & Cincinnati, and the Little Miami road. But only a few months since, the Little Miami passed finally into the hands of the Pennsylvania road, and that road is to have a short line connection over the Ohio, with the whole South-west. At the same time, the Erie road got control of the Hamilton & Dayton; and the Baltimore, of the Marietta; and thus we find the great New York Central cut off from Cincinnati, except on other people's roads. At first, as we have said, the Central turned up its nose, and said: "It is not much of a shower—we will go by the lakes." Of course, this would not do. Events have demonstrated that Cincinnati was the key to the whole South-west, and neither New York or Boston could afford to ignore it, and here we have the result.

2. And here we ask the reader to look at the vast commercial power which Cincinnati has acquired in a short time. It was a natural development, but one slow to come. What has brought it about is really the *bridge success*. Till recently, people did not realize that the Ohio would be bridged at all, and there was great, and apparently a successful opposition to any bridge building. But that is over, and now it is apparent we are to have railroad bridges wherever they are needed. The immediate result of this is—the Pennsylvania road with the shortest line to New York, crosses the Ohio on a railroad bridge and gives us the most available line to the South-west. Now, we unhesitatingly say,

that against that line, there will be no successful competition except by a line formed in the same way. And we come to the only available way by which New York roads can compete for the trade of the Central and South-west. Perhaps, the managers in New York don't see the thing as we do, but we shall tell them the truth—and if there be any great railroad sagacity there, they will see it. It is thus: Cincinnati is not allowed by Kentucky to make the Southern road. We do not know that she ever will be. But, from Cincinnati South, there are the best of railroad charters, granted by Kentucky and much local aid can be secured. Now, if there be any railroad sagacity in New York, the railroad managers will instantly take hold of and make the Southern road. They have no time to lose about it either. Both Philadelphia and Boston will soon see that this is the best unseized enterprise now open to the public. Let us say to the New York Central, that with the Short Line road, a first rate bridge, and a direct road to East Tennessee, New York will command the trade of the Central South. If she waits till the Pennsylvania road does it—the day of New York in the South is past! It is very likely, the managers in New York don't believe this; let them wait a while and they will see it. It is many years since we stated the whole system of railroads which must ultimately extend to Cincinnati, and each year has confirmed its truth. The "Southern road," which we have so long urged, will soon be made by somebody; and the only question is, who that somebody shall be.

3. In looking at this subject, let us look a little at the local route, our Eastern friends propose to themselves. Several years since, the cut off from Delaware to Springfield was made in the interest of the Cleveland road: but it did not accomplish anything, because at Springfield, the Cleveland company had to depend on other interests and those interests were, in some measure, antagonistic—those of Sandusky and Cleveland. We see now that the Columbus route to Springfield is the best to the lakes; but the road from Columbus to London is held by the Pennsylvania company, so there is to be a new road from Columbus to London; thence, the Sandusky road to Dayton, and the Short Line to Cincinnati. This is decidedly to the interest of the Cleveland company, and to some degree to that of the Sandusky, hence, they join in it. In regard to the "Short Line," there is some litigation in regard to the rights of the companies, and we believe there were two or three transfers and transformations. But we suppose the managers of the new enterprise know all about it, and will set all right. The London road is advertised for contractors, and we suppose the "Short Line" soon will be. When will the "Southern road" be advertised? Somebody will make that road soon.

Virginia Notes.

EDITORIAL CORRESPONDENCE.

RICHMOND, VA., July 20, 1870.

RAILROAD RECORD:—Every day a smart and well managed little steamer runs from Hampton to Norfolk, and return, touching at Fortress Monroe. When the Roads are smooth it is a delightful trip, and occupies but a couple of hours or so in crossing.

The citizens of the Fort and Hampton do a good deal of their trading at Norfolk, and this gives the little steamer a pretty fair business, to say nothing of stragglers, who like the writer, can't see enough of this charming sheet of water, and go about from point to point, to prolong the stay, and see it from every position.

I had traveled the same path from Old Point Comfort to Norfolk, only a few days before, and could have sailed for Richmond without recrossing, but my route was determined via Hampton, so at an early hour I was on board the steamer, and watched the arrival of passengers, and the loading of freight.

At the appointed hour we were off, and as we were passing out of the harbor, I met with a pleasant adventure through a little act of politeness, that placed me in talking relations with a very agreeable and intelligent lady, who had lived during the war at Fortress Monroe—who had been a close observer of the stirring events of that period, and who gave me many valuable facts concerning the people and country of the lower part of the peninsula. This acquaintance was afterward extended to this lady's husband, who is an active and intelligent gentleman, and to whom I am indebted for continued kindness during my stay in Hampton.

Under the auspices of this friend, I visited Fortress Monroe and the sand point just outside the Fort, where all sorts of experiments are had with the great guns of the nation, to test their strength, range, and the velocity and power of the different kinds of shot that the ingenuity of men has devised for the destruction of property and life.

This Fort is said to be the strongest in the United States. It certainly looks formidable enough, with its rows of great black cannon frowning from ranges of ramparts—its grim tiers of port holes, and wide deep moat. But it is a mere shelter for the "piping times of peace," as the experiments I have spoken of fully attest. A small fleet of gunboats armed with such projectiles as are now forged, would send every shot through its granite walls, and in a few hours leave it a mass of ruins.

It is a thing of the past, and I believe is so regarded by the government, as I am told, that all sorts of plans have been and are still under consideration by which it may be strengthened.

All the devices yet suggested, that commended themselves to the war department, have been thoroughly tested, and thus far are complete failures. Upon the beach, I have mentioned, are sections of fortifications built of every material, and in every possible way to resist cannon balls, but they all fall before the great masses of iron that are hurled out of the cannons mouths by the explosion of a hundred pounds of powder. Bricks laid in cement until the walls are twelve feet thick, and these casemated with blocks at least two feet thick of the most perfect granite, offer but a paltry resistance to the power of these massive guns. There is the work of months for a large number of men, at a cost to the nation of hundreds of thousands of dollars, torn to pieces in an instant. The great blocks of granite struck by the ball are crushed into fragments; literally ground up, those adjacent are torn from their cemented beds, and the mass of brick shivered to pieces. The shot has gone through the whole, and imbedded itself deep into the sand bank beyond. The result is about the same though perhaps not so quickly done, where these miniature fortifications have been casemated with plates of rolled iron, six inches thick, and protected by beams of solid iron, ten inches square.

There lie these immense plates, cracked, broken, balls bedded in them, and here and there perforated clear through; and the great beams bent, split and broken clean in two, as though they had been of brash wood.

This is the destructive work of cannon, and yet the great gun has never been fired. It is not even mounted, but rests upon blocks like an overgrown monster for which there is no use. Utility seems to have been overreached, and until there is some more effective means of resistance to the cannon shot discovered, this mass of iron may as well remain where it is, an evidence of American skill and ambition; unless it can send its metal through the sand bank erected upon this ground, and that, thus far, the power that crushed the granite, and brick, and iron, have been unable to more than just penetrate, and in many instances, only to pierce a few feet in from the surface. This it can not probably do, as it is found that the increased size of the ball meets with a corresponding resistance in a sand bank, that neutralizes the greater power with which it is propelled.

It is pretty evident from these facts, that Fortress Monroe can not be rendered impregnable with brick, or stone, or iron, or all three combined, but may be by burying its walls in sand. Whether this will be done remains to be seen. I believe no one has yet been bold enough to propose it.

Hampton was razed to the ground during the war, and has not yet recovered from the misfortune. There are piles of debris where once stood good domestic and business build-

ings; and there is little evidence that it will attain, for some time at least, an improvement approximating its original beauty. The local business of the surrounding country is done here; the people are pleasant to strangers—many of them quite intelligent, and all seem contented. A state of feeling, I think, produced to a great degree, by a genial climate, a fertile and easily cultivated soil, and an abundant supply of the finest of fish, oysters, and the luxuries of the sea.

Near here is a federal cemetery, in the center of which is a stone column upon a broad granite base, and inclosed with a fence made of the bayonets of old muskets. Upon the sides are typical representations of the war, and a singularly inelegant inscription to the country, and those who died in its service. This memorial was erected by Miss Dix, daughter of the General, and is known as the Dix monument.

Contiguous to this burial ground, is the estate known in old times, as "Little Scotland," containing about one hundred and sixty acres. It is beautifully situated, fertile, with a fine coast for bathing, and in the range of the refreshing sea breezes. It is now somewhat famous as being the seat of the Hampton, Normal, and Agricultural Institute, under the auspices of the American Missionary Association.

This institute has recently been incorporated under the laws of Virginia, with ample powers for the objects of its adoption, which are to prepare the youth of the South, *without distinction of color*, for educators of the rising generation of the Southern States.

The society are erecting a large brick building, upon the most eligible site of this property. It is already in a stage of such forwardness as renders its completion certain at an early day, and is, in its appointments, arrangements, size and architectural beauty, a most creditable structure.

The school is now carried on in buildings upon the grounds that were in use during the war. I understand none but colored students have yet availed themselves of its opportunities. The officers in the management make good reports of their success thus far, and are sanguine the expectations of its founders will be realized. I venture no opinion upon this experiment. It is well enough to make it, and that too, under the most favorable surroundings. No theorizing will answer—a practical test is demanded, and this is the opportunity and the place to make it.

From this place I passed across the country, six miles, to New Port News, at which point I could take the Norfolk steamer, en route to Richmond.

This is one of the localities talked of for the great commercial city of Virginia, and the sea front terminus of the Chesapeake & Ohio Railway.

It is a rough looking place now, but the

ground is high, the shore bold, the water very deep, the harbor quite ample for a most extensive demand, and secure as any upon this coast for large vessels, and can be readily made equally so for those of the smaller class. Besides, the soil is rich, the locality healthy, and there is an abundance of good fresh water to be had from unfailing springs, and it is within two and a half hours time by rail from Richmond—two hours nearer by water than Norfolk—is as accessible from the sea as any other point, and is in direct line with all the thoroughfares leading from Richmond into the interior.

Certainly, if an unprejudiced and intelligent observer was looking over the points and capes of this wonderful section of the country, for a locality to receive and exchange foreign and interstate products, he would find many strong and unanswerable reasons why he should locate it at what is now called by the quaint name of New Port News.

I am told that a company of Eastern gentlemen have purchased considerable property here, and that they have secured a charter for the construction of a railway from Richmond down the Peninsula to this point. What their plans are, no one about here seem to know. Time and the success of inland lines of railway, will, I suppose, alone develop.

From this place I shipped for Richmond on board the fine and rapid sailing steamer, John Sylvester. We made a pleasant trip up the James. The captain making "the hours glide pleasantly o'er," by pointing out to us places of interest and note along the river.

At half past three the spires of Richmond were before us. This beautiful city of the hills, looked magnificent through the quivering light of the descending sun. I was running into all sorts of reflections upon its history, struggles and prospects, when the stentorian command of the pilot "to haul out that plank," broke the spell. We were at the Rockets. A few minutes more and I was snugly ensconced in the Spotswood House, certainly one of the most comfortable, best kept, and homelike hotels it has ever been my fortune to stop at.

CELINA.

The Chattanooga Rolling Mill has enlarged its capital stock to \$600,000. The old stock amounted to \$250,000. Of the increased stock, \$315,000 have already been subscribed. The mill will begin work about the middle of June, and will make one hundred tons of rails per day. In connection with the rolling mill another blast furnace will be built as soon as possible.

—The Creusot Works have contracted to furnish the Orleans Railway with 2,000 tons of steel rails at £10.6s per ton delivered at Sanicaize. Creusot has also undertaken to supply the Paris, Lyons & Mediterranean with 2,000 tons at £10 per ton at the works.

Report of Transportation Committee of the Board of Trade, Relative to Facilities for Shipping Southern Freight.

CINCINNATI, July 26th, 1870.

To the Transportation Committee, Board of Trade:

GENTLEMEN—In compliance with your instructions, I have investigated the means that are being provided for the transfer of freight from our city to the South, and more especially to the Lower Ohio, during the period of low water and the closing of the canal round the falls of the Ohio river at Louisville.

The attention of the public has been very much directed to this matter of late, and considerable apprehension seems to have been entertained that the present fall business must suffer from the anticipation of high rates on Southern freight.

I am happy in being able to report that the temporary closing of the Louisville canal, seems likely to be of permanent benefit to this city; for, instead of looking on the canal as a vital necessity to our prosperity, we will soon learn to regard it only as a valuable assistant in obtaining cheap transportation toward the South.

In this connection, I would call your attention to the necessity of an early effort being made to have this canal free for the trade of the entire country, instead of permitting it to be used as an instrument for the benefit of Louisville, and indirectly of St. Louis. Steamers loading at Louisville, and having paid to come up the canal, return free. Steamers loading at Cincinnati pay toll both coming and returning.

Steamers pay toll on their estimated tonnage instead of on their actual freight, and therefore on a small cargo pay as much toll as when loaded to their fullest capacity. This is a very onerous tax for our citizens to pay on the profits of their business.

But to return to the matter more immediately under consideration.

The "Dean" and "Hale" line of steamers to Memphis have made arrangements to continue their line of transportation without interruption. If necessary, they will run some of their steamers above the Falls and some below, or else they will contract with the Louisville Mail Line of steamers, or some other steamers for the conveyance of freight from Cincinnati to Louisville. For the transfer of freight from above the Falls to below the Falls, they have provided ample facilities in the way of drays and wagons.

The Louisville Mail Line of steamers has determined to extend greater facilities than ever to our shippers, and I am assured by Capt. Pearce that nothing will be left undone to secure the transmission of freight to steamers below the Falls. He proposes to pro-rate with all the lines running on the lower Ohio, and has provided for the speedy transfer of freight at the Falls.

I am indebted to Gen. Weitzel for some valuable suggestions relative to the transfer of freight over the Falls, and the possibility of this means being resorted to will compel cheap transfer by land.

I would remind you that although our Southern Trunk Railway is not completed, yet we have tolerable means of communication by railway with the South.

The Short Line Railway to Louisville publishes a fair schedule of rates to the Southern cities, which I am assured will be acted on during all the fall season. They have, moreover, made arrangements with lines of steamers on the lower Ohio, to pro-rate with them in the transportation of freight to all the towns between Louisville and Cairo, as well as on the Mississippi river.

The I. & C. Railroad Company have running

arrangements with the Indianapolis & Jeffersonville Railroad, and that road has a track to the river, below the Falls. I have assurance that the rates of freight will be established on a most liberal basis, connected to be delivered on Steamers below the Falls.

The O. & M. Railroad Company have a line of rails extending to a point within a short distance of the Falls, and are actively perfecting arrangements to enable them to contract for freight to be delivered on the lower river steamers.

The competition that now exists on railway freight to various points on the lower Ohio and the Mississippi rivers insures reasonable transportation of freight to some point on these rivers whence steamers can carry it toward its destination.

The anticipated completion of the Nashville & Henderson Railroad by the first of next October will open up a fine competing line to the interior cities in the South.

I think prospects for cheap transportation to the South this fall, notwithstanding the closing of the Louisville Canal, are better than they ever were, but I did not intend making a report on this subject until after I had made a trip to Louisville, and personally had conversation with the officers of the roads running therefrom. I find that I cannot obtain the desired interviews for several days, and, therefore, defer the trip I had intended to make. But as it is necessary our shippers and customers should know at an early date what are the prospects for shipping goods, I make this preliminary report, deferring more specific information to a future day.

I am pleased to report that some of our largest shippers look with much favor on our proposed freight department, and some of our original members are willing to increase their subscriptions four or five fold if the desired object can only be promptly secured. If the responses from those shippers who have received circulars and forms of application for membership are not promptly received nothing can be done to benefit our fall trade, and I hope before the week closes we will see the requisite number of applications sent in.

I feel assured the freight department will be efficacious in the equalization of rates of freight on a reasonable basis so that customers can rely on fair rates of freight, without the rapid fluctuations that derange commercial business to so great an extent.

Nothing that is herein said, regarding increased facilities for transporting freight southward, argues against the great importance of the early completion of our Southern road. That is a necessity for the ultimate prosperity of Cincinnati.

Very Respectfully,
N. McNEALE, Chairman.

IMPORTANT RAILROAD MEETING.—The Maysville (Ky.) Bulletin of Thursday says: "There will be a Railroad Meeting at the court-house, on Saturday evening next, to urge upon our people the importance of securing the early completion of the Frankfort and Paris link in our railway system, and with that end in view to consider the propriety of appointing delegates to the meeting announced to be held in the city of Frankfort, on the 18th of August next.

"As a railway enterprise is never without friends in Maysville, we have no doubt the attendance will be large."

[We have an impression that the Kentucky Legislature passed an act last winter authorizing the Louisville, Lexington & Cincinnati (short line) railroad to construct the above line, and to issue bonds sufficient to do the work.]

The Rockport & Cincinnati Railroad— Letter from Engineer Lovett.

[From Cincinnati Gazette.]

A short time since arrangements were made for a reconnoissance of the line of the Rockport and Indiana Railroad, and Mr. Thomas D. Lovett, the accomplished Chief Engineer of the Ohio & Mississippi Railroad, consented to run over the projected route. As a result of Mr. Lovett's observation, the following letter has been furnished by him:

CINCINNATI, July 23, 1870.

John A. Gano, Esq., President Chamber Commerce:

MY DEAR SIR—At the request of the Board of Directors of the Rockport & Northern Central Railroad of Indiana, I have made a reconnoissance of the country lying between Loggootee, a station on the Ohio & Mississippi Railway, one hundred and fifty-eight miles west of Cincinnati, and Rockport, on the Ohio river, about sixty miles south of Loggootee.

Dr. E. H. Sabin, Vice President of same road, and Mr. H. R. Weeks, one of my assistants, accompanied me. The route indicated that by pursuing the favorable valleys that presented themselves in a north and south direction, a practical and economical route could be obtained, comparing favorably in cost with other roads already constructed in Indiana. The commercial advantage that would result from the opening of this road to the city of Cincinnati, can not be too highly appreciated, as it opens up the largest area of territory now unoccupied by railways in any portion of the State.

The city of Louisville, with the energy she has exhibited for the past few years in extending her railway communications, is already in the field with a proposed East and West line. Let the merchants of Cincinnati but make a small subscription to the stock of the North and South line, and she will secure at least her share of the trade; otherwise Louisville obtains the whole. This is a matter that should not be overlooked by Cincinnati merchants, when they take into consideration that about five thousand square miles of territory abounding in rich agricultural products and inexhaustible beds of mineral fuel of very superior quality, will be tributary to this road, saying nothing of an independent route to the South by way of Owensboro, Kentucky.

This is the great tobacco growing country for the State of Indiana, more of it being raised in near proximity to this proposed road than in the balance of the State. The crops of all kinds are looking fine and the lands well under cultivation. I was particularly struck with the general thriftiness of the farmers; all are industrious, and by this means are enabled to pay six or eight dollars per hoghead of tobacco and other freights in proportion, for teaming to the river, or distant railways, and still prosper. A road constructed on this line for the entire distance between its terminus, the directness of alignment and character of grades will render it capable of being operated at high rates of speed with perfect safety.

Only two bridges of any importance will be required—one over White river and one over Patoken, both of which can be constructed at moderate cost; other streams are small and very cheaply bridged.

In conclusion, I believe the road can be cheaply built with a good alignment, easy grade, and return a fair remuneration on the

investment. Six months of good weather would accomplish it.

I left Mr. Weeks on the ground to make arrangements for an accurate survey.

Very respectfully, your obedient servant,
THO. D. LOVETT

Baltimore & Ohio Railroad.

The following letter from Mr. Garrett, furnishes a very succinct statement of the condition and history of this great and successfully managed railroad, that can not fail to interest not only the stockholders of the road, but all who are (and who is not) interested in the development of the traffic and transportation business between the West and tide-water.

"BALTIMORE & OHIO RAILROAD.

"PRESIDENT'S OFFICE, BALTIMORE, March 21, 1870.

"Messrs. Baring Brothers & Co., London:

"GENTLEMEN—I submit the following facts in reference to the Baltimore & Ohio Railroad, its financial condition, connections and traffic:

"The length of the main line of the Baltimore & Ohio Railroad, from Baltimore to Wheeling, is 379 miles, of which 238 miles are double tracked. The cost of this line including second track, rolling power and real estate, on September 30, 1869, \$29,212,729 17. The mortgage liens on this property prior to issue of the mortgage for £800,000, on March 1st, 1870, were \$6,914,441 86, being less than one-fourth the cost stated. Many extensive and costly improvements have been made upon this line, and large additions have been made to the plant, which having been charged to expense accounts, do not appear as capital. The net earnings of the company have for a long period been more than equal to six times the amount of the interest payable on the entire mortgage debt. For many years uniform dividends have been made of eight per cent. per year, and paid semi-annually. After the payment of all interests and dividends on capital on the road and its branches, the company has invested surplus profits amounting to \$20,361,676 01, which are undivided, and which are represented by its proprietorship of branch roads and other property and stocks.

"The earnings of this large undivided capital continue to be invested in desirable structures, improvements, additional equipment, and the construction and control of important connecting roads. It owns, in whole or in part, and works under contract, the following branch roads, viz: The Washington Branch, from Washington Junction to the city of Washington, 31 miles; the Parkersburg Branch Railroad, from Grafton to Parkersburg, in West Virginia, 104 miles; the Washington County Branch road, from Knoxville to Hagerstown, in Maryland, 23 miles; the Central Ohio Division, extending from Bell aire, on the Ohio river, to Columbus, the capital of Ohio, 137 miles; the Lake Erie Division, extending from Newark, on the Central Ohio road, to Sandusky, an important port of Lake Erie, in Ohio, 116 miles; the Winchester & Potomac Branch, viz: from Harper's Ferry, through Winchester to Strasburg, in the Valley of Virginia, 51 miles, total, 462 miles.

"The Baltimore & Ohio Company is assisting the Marietta & Cincinnati Railroad Company to improve its line, and is engaged in constructing the Metropolitan Branch road, from the Point of Rocks (on its main stem) to

the national capital, 42 miles; and the Pittsburgh & Connellsville road from Cumberland to Connellsville, in Pennsylvania, 90 miles, through which a superior and direct line will be opened from Baltimore to Pittsburgh, with important connections from that center of commerce and manufactures. The western section of the Pittsburgh & Connellsville road, viz:—from Connellsville to Pittsburgh, 58 miles—has been completed and is in full operation, having a large local traffic. The Baltimore & Ohio Company is also engaged in building two great iron bridges over the Ohio river, connecting its Parkersburg branch with the Marietta & Cincinnati Railroad at Parkersburg, and its main road with the Central Ohio Railroad at Bellaire. The masonry of these bridges is nearly completed, and it is expected that both bridges will be fully constructed and in use prior to the 1st of January next. These bridges will cost together \$2,000,000. In addition to the payment of dividends, payments have been made from the earnings, reducing the mortgages heretofore made from \$11,895,166 67 to \$6,914,441 86. The annexed statement shows the aggregate earnings, expenses and net results from October 1, 1858, to September 30, 1869, inclusive, of the Baltimore and Ohio railroad and all its branches:

Due.	Earnings.	Expenses.	Net Results.
Sept. 30, 1859.	\$4,301,000 27	\$2,051,917 60	\$2,249,082 67
Sept. 30, 1860.	4,634,226 50	1,944,241 59	2,689,984 91
Sept. 30, 1861.	4,004,097 12	1,817,432 39	2,186,664 73
Sept. 30, 1862.	5,624,297 74	1,817,774 35	3,776,593 49
Sept. 30, 1863.	7,339,289 51	2,643,175 80	4,696,113 71
Sept. 30, 1864.	10,138,876 03	4,446,145 28	5,692,730 75
Sept. 30, 1865.	11,771,875 72	6,749,021 55	5,022,854 17
Sept. 30, 1866.	6,694,424 83	5,535,164 64	1,159,260 19
Sept. 30, 1867.	8,340,409 07	4,991,315 33	3,349,093 74
Sept. 30, 1868.	8,472,217 76	5,784,111 51	2,688,106 25
Sept. 30, 1869.	9,676,873 04	6,569,127 60	3,107,745 44

Aggregate \$33,337,656 69 \$44,132,180 71 \$39,205,475 98

"I am, with great respect, your obedient servant,

"JOHN W. GARRETT, President.

"*Being the present issue."

Virginia.

We give below a copy of the Bill enacted by the Virginia Legislature, that authorizes the consolidation of the Norfolk & Petersburg road, 81 miles; the Southside R. R., from Petersburg to Lynchburg, 123 miles, with a branch to City Point, 10 miles; and the Virginia & Tennessee R. R., from Lynchburg to Bristol, 204 miles, with a branch from Glade's Springs to Saltville, 8½ miles. These form a grand line across the State of Virginia, with connections with all the principal points of the South-west. The consolidated capital is \$18,000,000. General Mahone is President of the line:

ATLANTIC, MISSISSIPPI AND OHIO RAILROAD.

The following is a copy of the Bill passed by the Legislature of Virginia, entitled "A Bill to authorize the formation of the Atlantic, Mississippi and Ohio Railroad Company," approved June 17, 1870:

1. Be it enacted by the General Assembly of Virginia, That John Goode, Jr., and Thomas S. Corlew, of the city of Norfolk; George W. Rolling and J. A. Johnston, of the city of Petersburg; E. H. Murrell of the county of Campbell; Thomas S. Boccock and Robert Early, of the city of Lynchburg; William Watts, of the county of Roanoke; James A. Walker, of the county of Pulaski; Robert Crockett of the county of Wythe;

Abram Fulkerson, of the county of Washington; Henry S. Kane, of the county of Scott; and Peter C. Johnston, of the county of Lee, be and they are hereby constituted a board of commissioners, a majority acting, to effect the organization of the Atlantic, Mississippi and Ohio railroad company, as provided by the terms of this act.

2. That the said Atlantic, Mississippi and Ohio railroad company may have a capital stock of twenty-five millions of dollars, such part to be made common, such part preferred, and such part an interest guaranteed stock, as the president and board of directors of the said company may prescribe—all, however, to be rated at one hundred dollars per share, par value.

3. That it shall be the duty of the commissioners above named, acting directly or by their agent or agents, to arrange with the stockholders, other than the State, of the Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies, as to the relative value of their stocks, and to receive subscriptions to the capital stock of the said Atlantic, Mississippi and Ohio railroad company, to be paid in the stock of the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroads at such rate or valuation as may have been agreed upon; provided, that such valuation shall allow to each stockholder of the Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies, subscribing to the capital stock of the said Atlantic, Mississippi and Ohio railroad company, at least as many shares as such stockholder now holds in the aforesaid companies; and for the purpose the more readily of arriving at such valuation, it shall be lawful for the stockholders, other than the State, of the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroads, to hold a joint meeting at such time and place as the aforesaid commissioners may designate; and it shall be competent for a majority of the stockholders assembled at such meeting, each company acting separately, to agree upon such valuation; provided, that no stockholder in any one of the said companies shall be required to subscribe or merge his stock in the capital stock of the said Atlantic, Mississippi and Ohio railroad company, without his consent, or accept on terms agreed to by such stockholder.

4. That whenever it shall appear to the satisfaction of such commissioners that a majority of the stock, as to shares held in the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroads, or of that held in a majority of the said companies, by others than the State, has been subscribed to the capital stock of the said Atlantic, Mississippi and Ohio railroad company, a general meeting of the stockholders, so subscribing to the capital stock of the said Atlantic, Mississippi and Ohio railroad company, shall be held at such time and place as may be designated by the said commissioners; notice of the same to be given by publication in one or more newspapers published in the cities of Norfolk, Petersburg, Richmond and Lynchburg, and in the town of Bristol-Goodson, unless it shall appear, at the joint meeting provided to be held by the terms of the preceding action of this act, that such amount of stock has been subscribed, in which event it shall be competent to proceed then and there to organize the said Atlantic, Mississippi and

Ohio railroad company, as provided by the terms of this act.

5. That the stockholders of the said Atlantic, Mississippi and Ohio railroad company, may, at the general meeting hereinbefore provided, a majority of the stock subscribed being so represented, proceed, under the supervision of the said commissioners, to organize the said Atlantic, Mississippi and Ohio railroad company, and do such other things in furtherance of the objects of this act as may be lawful to be done; and finally, upon the organization of the said company, so authorized, the functions of the said commissioners shall determine, and the said Atlantic, Mississippi and Ohio railroad company shall be a body corporate and politic, vested with all the rights and privileges conferred by the laws of the Commonwealth, and subjected to such as apply to the railway corporations thereof generally.

6. That in the primary organization of the said Atlantic, Mississippi and Ohio railroad company, as herein provided, and in all subsequent meetings of the same, each stockholder shall be entitled to cast, in person or by proxy, one vote for each share of stock held in the said company; and at such primary organization it shall be competent to elect such number of directors as the stockholders may see fit, and to determine the mode of electing a president and directors.

7. That the said Atlantic, Mississippi and Ohio railroad company, at any time after its organization, shall have authority, should it so desire, to arrange with the Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies, or with any of the said companies, by lease or otherwise, for the use of the franchise and property of the same, upon such terms as may be agreed upon by their stockholders in any general meeting.

8. That the said Atlantic, Mississippi and Ohio railroad company, acting by such agent or agents as may be appointed by its president and board of directors, shall be entitled to represent in all meetings of the stockholders of said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies—so long as there shall remain any such distinctive organizations, from the failure of a majority of the stockholders thereof to subscribe or merge their stock in the capital stock of the Atlantic, Mississippi and Ohio railroad company as herein provided—all the stock of the said companies which shall have been subscribed to the capital stock of the said Atlantic, Mississippi and Ohio railroad company, casting the same number of votes for each stockholder who may have so subscribed to the capital stock of the said Atlantic, Mississippi and Ohio railroad company, as such stockholder would be entitled to cast by law, if such subscription and transfer had not been made.

9. That upon the formation of the said Atlantic, Mississippi and Ohio railroad company, as provided by the terms of this act, the board of public works shall be and they are hereby empowered and directed to sell and transfer for the consideration hereinafter mentioned, to the president and board of directors of the said Atlantic, Mississippi and Ohio railroad company, all the stock held by the Commonwealth in the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroads, to be cancelled or distributed among the stockholders of the said Atlantic, Mississippi and Ohio railroad company, in the discretion of

the stockholders of the said company; as the stock of other stockholders than the State shall as to each of the aforesaid companies become absorbed in that of the said Atlantic, Mississippi and Ohio railroad company, and the said company shall be authorized to appoint such number of directors in the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies, so long as there shall remain any such distinctive organizations, as the State now appoints; and upon all such stock so sold and transferred by the State, the said Atlantic, Mississippi and Ohio railroad company, by such agent or agents as its president and board of directors may appoint, shall be entitled to vote at all meetings of the stockholders of the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies which may be thereafter held, casting the same number of votes as the State of Virginia would be entitled to cast by law, if such sale and transfer had not been made; and the board of public works are further empowered and directed to sell and assign or convey unto the president and board of directors of the said Atlantic, Mississippi and Ohio railroad company, all and whatever claims the State may hold or have against the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies, and in and with the said Atlantic, Mississippi and Ohio railroad company, every claim, right and privilege shall as firmly vest as to all such claims as were vested in and with the Commonwealth on account of the same.

10. That in consideration of the sales and transfers of claims and stocks herein authorized and directed to be made, the Commonwealth of Virginia shall thereafter be absolved from all and whatever liability for and by reason of her unsatisfied subscriptions to the Virginia and Kentucky railroad company, which it is conditioned shall be completed within six years after the organization of the said Atlantic, Mississippi and Ohio railroad company; and in addition, the Commonwealth of Virginia shall be entitled to receive four millions of Virginia bonds, or at the option of the said company, of money, payable by annual installments of five hundred thousand dollars each, the first payment to be made during the year 1885; such payment of the four millions of bonds as aforesaid to be secured by a second mortgage upon the property of the said Atlantic, Mississippi and Ohio railroad company, to be duly executed to the board of public works of the State immediately upon the surrender of all the aforesaid claims and stocks authorized to be sold. The said mortgage to be, in all respects, subordinate to such first mortgage or deed as the said Atlantic, Mississippi and Ohio railroad company may have made or may thereafter execute; provided, the amount of such first mortgage or deed shall not exceed the sum of fifteen millions of dollars; provided, that a part of such sum, equal in amount to all existing liens upon the roads to be consolidated, shall be set aside for and employed in the discharge of the same, and the remainder employed in the construction of the road to Cumberland Gap, and the repairs and improvement of the whole line, so that at no time shall the obligations of the line prior in dignity to such second mortgage to the State, exceed the said amount of fifteen millions of dollars; and provided, that the said four millions of State bonds shall bear interest, at six per cent., from the first day of

July, 1880; the interest accruing thereon to be paid in lawful money of the United States, or, at the option of the Atlantic, Mississippi and Ohio railroad company, in State bonds, dollar for dollar; and provided further, that the said Atlantic, Mississippi and Ohio railroad company may, at their option, begin the annual payments in liquidation of said four millions of State bonds in the said year 1880, in which event the deferred payments shall bear interest from first July, 1880.

11. That it shall be lawful for the said Atlantic, Mississippi and Ohio railroad company to take subscriptions for any unsubscribed portion of their capital stock, and to receive in payment, at such rate or valuation as may be agreed, lands, materials, city or railroad bonds and stocks; and it shall be lawful for the cities of Norfolk, Petersburg and Lynchburg, and for the counties of Lee, Scott and Wise, to subscribe to the capital stock of the said Atlantic, Mississippi and Ohio railroad company in such sums as may be authorized by the qualified voters of such cities and counties voting upon the same; and to this end it shall be the duty of the councils of such cities, and the county courts of such counties, in their discretion, to cause a vote to be taken, in the manner prescribed by law, at such time as the president and board of directors of the said Atlantic, Mississippi and Ohio railroad company may ask.

12. That the said Atlantic, Mississippi and Ohio railroad company shall hold all lands acquired under this act and in fee simple, with the right to sell and convey the same.

13. That it shall be lawful for the said Atlantic, Mississippi and Ohio railroad company to issue bonds, or other evidences of debt, at a rate of interest not exceeding the maximum prescribed by law, and to secure the payment of principle and interest by mortgage or otherwise; and it shall be lawful for the cities of Norfolk, Petersburg and Lynchburg, and for the counties of Scott, Lee and Wise, to guarantee such payment of any of the bonds or other evidences of debt so issued, whenever the qualified voters of such constituencies shall, in the manner provided in the eleventh section of this act, so authorize.

14. That as the stock of the said Norfolk and Petersburg, Southside, Virginia and Tennessee, and Virginia and Kentucky railroad companies, respectively, shall be absorbed by the said Atlantic, Mississippi and Ohio railroad company, as contemplated in the terms of this act, the said company shall become absolutely vested with all the rights of franchise and of property which belong to the same; provided that a separate account of the property, receipts and expenses, as to each of the aforesaid railroad companies intended to be absorbed by the operations of this act, shall be kept, in so far as to protect the claims and preserve the rights of such creditors and stockholders as to each of the said roads, as may remain unsatisfied by the Atlantic, Mississippi and Ohio railroad company.

15. That it shall be lawful for the said Atlantic, Mississippi and Ohio railroad company, upon such terms as shall be agreed upon, to consolidate with any railroad which may be constructed from Richmond to Lynchburg; provided, that in the event of the failure of such consolidation, the said Atlantic, Mississippi and Ohio railroad company from Richmond to Lynchburg, shall mutually arrange for the interchange of passengers and freights, and the gauge of the two roads permitting, of cars so that passengers and freights passing from and to the line of such road from Lynch-

burg to Richmond, shall be subject to no manner of discrimination.

16. That the said Atlantic, Mississippi and Ohio railroad shall, as to freights and tonnage passing to or from the line of its railway, for or from Richmond and points on the line of the James River and Kanawha canal, allow the same pro rata charges as by the Southside railroad, and by other lines connecting with the said Atlantic, Mississippi and Ohio railroad at Lynchburg; provided, that in all computation of such rates with the canal, the same shall be made upon the basis or allowance of not less than seventy miles for the canal from Richmond to Lynchburg, and that the said canal shall not, by reason of this act, be divested of any right or privilege to which it is now entitled by an act passed March 6th, 1849, "authorizing a subscription for the Commonwealth to the stock of the Virginia and Tennessee railroad company," or by any other law.

17. The said Atlantic, Mississippi and Ohio railroad company shall allow any connecting work all proper facilities in and for the formation of a physical junction with the railway tracks of the same and for the interchange of freights and passengers. And the said Atlantic, Mississippi and Ohio railroad company shall make no higher rate of charge on passengers and freights coming from the line of any connecting work and destined for any point on the line of the said Atlantic, Mississippi and Ohio railroad, or upon the passengers and freights coming from any point on said road, and destined for the line of any such connecting work, than is made by the said Atlantic, Mississippi and Ohio railroad company in the like class of passengers and freights for transportation over its own line for the same distance; provided, such connecting work shall observe the same rule in its charges for the transportation of such passengers and freights; and provided, further, that if either company shall so arrange its freight cars as to run upon the track of the other, they shall be received and transported to any point of destination on the line of such other road upon just principles as to the charges for moving, transporting, and delivering such freight cars, as may be agreed on by said companies; and provided, further, that the freight cars of such connecting road shall be of the same size, pattern, and plan, as those of the said Atlantic, Mississippi and Ohio road.

18. This act shall be in force from and after its passage.

The Ferguson Railroad Bill.

DECISION OF JUDGE PENNEWELL—ITS CONSTITUTIONALITY AFFIRMED.

We publish below an abstract of an opinion delivered by Hon. C. E. Pennewell, of Toledo, Judge of the Huron Common Pleas, on a petition for an injunction to restrain the issue of bonds by the city of Toledo, and to prevent the construction of the Toledo & Woodville Railroad, under contract with J. Edwin Conant. The law under which the contract was made was passed after the passage of the Ferguson Railroad Bill, after which it was modeled, and with which it was almost identical in terms, except that its provisions were made general. The decision of Judge Pennewell, therefore, as far as it relates to the constitutionality of the bill, is equally applicable to the Ferguson bill.

The argument was very full, and both sides were represented by able counsel, Messrs.

Frank H. Hurd and C. H. Scribner appearing for the plaintiffs, and Messrs. Charles Kent, M. R. Waite and John C. Lee for the defendants. The abstract of the opinion which we publish is from the Toledo Commercial:

The question requires the most careful consideration by the Court, both on account of the alleged importance of this railroad enterprise to the city of Toledo, to the interests of the plaintiffs, and the tendency of sustaining the statute in question on future legislation of the same kind.

1. The defendants allege that the plaintiffs, being residents and tax payers of the city of Toledo, can not, by reason thereof, bring this action. Upon examination, it appears that the authorities cited by the counsel for the defense, (the 18 and 23 N. Y. and others), sustain this position; but in Pennsylvania and Ohio, the holding seems to be the other way. Our opinion is that the citizen may bring his action to stay the incurring of a debt that will fall as a burden of taxation upon him and others. But in the view I have taken of this motion, the determination of this question is not material.

2. The claim made by defendants, that plaintiffs are improperly joined, as well as that the city is a necessary party, for the reason above named, need not be seriously considered.

3. The plaintiffs insist that the statute of May 4th, 1869, under which this railroad is to be built, is unconstitutional, and all acts under it void. We recognize the rule of construction, that an act must be manifestly inconsistent with the Constitution, to be so held by the Judiciary. Doubts in the mind of the Court must all be resolved in favor of the validity of the act. The presumption that the Legislature has well considered the question of the conformity of a proposed amendment to the Constitution must be allowed in every case. The Legislature may have enacted without doubt, that which the Court, upon any other rule, might overturn in doubt. With this rule we will proceed to consider the various sections alleged to be in conflict.

That first named in Sec. 19, Art. 1, which reads: "Private property shall ever be held inviolate, but subservient to the public welfare." The conflict with this section is alleged to be in taking private property for a private use. Although the city is authorized to exercise the right of eminent domain in securing right of way, and to impose taxes to construct the road, yet this is done for a public use and not a private one. The mere fact that only part of this road will be within the city limits, does not change its character, as a work of public benefit. While it may be for the local benefit of Toledo, it will nevertheless be for the public benefit of all its citizens.

The next point in which conflict is asserted, is by reason of the provisions of the 26th section of article 2: "All laws of a general nature shall have a uniform operation throughout the State, nor shall any except such as relates to the public schools be passed to take effect upon the approval of any other authority than the General Assembly, except as otherwise provided in this Constitution."

The claim of the plaintiffs is, that being of a general nature, ought to have a uniform operation throughout the State; that the law is to take effect upon a vote of the City Council and of the people. Of this claim little more may be said than that it is not tenable. The Supreme Court has passed, and that quite recently, upon this Constitutional provision. We think the law took effect without,

and before any vote by the Council or the people. Their action was had in the way of execution of, and not in the way of approval, so as to give or deny its validity.

The third point to be passed upon is made on the 1st, 2d, 3d, 4th and 5th sections of article 8. By these sections the State is limited in its power of creating debt, with respect to the objects and amount of the debt, and also prohibited from loaning its credit for the prohibited objects. The State is also forbidden to become a joint owner or stockholder in any company or association in the State or elsewhere for any purpose whatever. A like prohibition is put upon the State to assume the debts of cities, counties, or any corporation whatever, except those created to repel invasion, suppress insurrection, or defend the State in war.

It is urged that these provisions apply as well to political subdivisions of the State as to the State itself. It is sufficient for me, that the Supreme Court has held (in the case of the 2d O. S. R., *Cass vs. Dillon*) that these provisions refer to the State alone, and not to these subdivisions. The Court there very distinctly announced this doctrine, and I could not, if I would, disregard it.

More especial stress has been laid upon the inconsistency of this act with Section 6 of Article 8. Here it is claimed the letter of the Constitution is infringed, because by undertaking the construction of a railroad under this statute the city becomes a railroad company and lends its aid to such railroad company.

We do not understand that because the city builds the railroad, that it thereby becomes a railroad company. It is a work undertaken for the benefit of the city, as any other public work, such as the construction of water works, and the procuring of gravel or fuel for the use of the city. The letter is not infringed. While there is much force in the argument of counsel for plaintiffs, that if the city can build one mile of railroad, it can build one hundred miles, I am not prepared to say that it can not. Perhaps it might be an abuse of such power, but when we look into Art. 13 and Sec. 6, we find that the General Assembly is authorized to prevent the abuse by cities of their powers of taxation assessment, borrowing money, contracting debts, and loaning their credit, thus apparently leaving, with the Legislature, the power and discretion over these powers of cities. This is rather a question for the Legislature than for the Court. This power in the Legislature seems to have been reposed, as a safeguard, in the control of municipalities in taxing, incurring debts, etc.

Upon the whole review of the question, I must hold the law to be constitutional.

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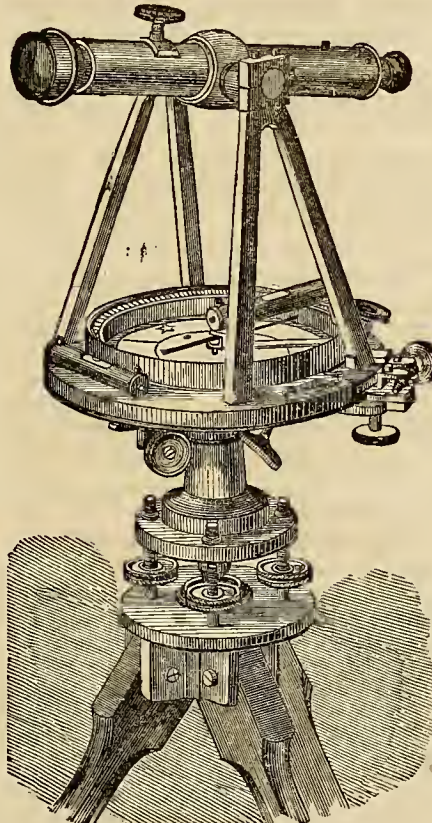
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8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

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Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 326 Broadway at No. 10 Greenwich st., and at the principal hotels.

R. E. TICKET, Superintendent.

H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
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New Railroads.

Short Lines, and Junction Lines, and Southern Lines.

There is so much of interest in the schemes and struggles for short entrances into Cincinnati, and through Cincinnati to the South, that we feel disposed to consider the subject, and determine, if we can, the practical solution of these schemes; and here we may say, they are more numerous than the public suppose. Till within a few years, it was deemed impracticable, or at least, undesirable to cross high ridges, or go through expensive lands and houses; but now railroads don't stop for hills and mountains, and they don't stop for expense. Science has learned to solve the problem, and capital has accumulated so fast in our country, that money can be found for almost anything. Nothing is thought impossible in regard to new schemes. The managers of a great railroad company put their fingers on New York and Cincinnati, St. Louis, Memphis or New Orleans, and say they must have a Grand Trunk Line, connecting any two of these points, and it is done. But, the rage for connecting lines don't stop there. Lines between minor points—or rather, short lines, going from a minor point to an important one—find that they have made a little mistake in not making the whole line, or not making it on the best route, and they proceed to mend, and to

lengthen their ways. Now, all this is the inevitable result of the hap-hazard way, without any general plan, in which our railroads were at first made. These new routes and improvements must at some time have been made, and in this day of peace, wealth and prosperity, we are glad to see these new enterprises. Here, at Cincinnati, we are peculiarly situated in regard to these new works. In the first place, Ohio, between the lakes on one side, and the southern mountains on the other, is, emphatically, the Gateway to the West. Do what they may, the Trunk Lines from the Atlantic to the West, must pass through Ohio. Very much the same thing is true of Cincinnati. Having got to Ohio, these lines, if they seek the South or South-west, must pass through Cincinnati, or at least, this is the best route. It has seemingly taken a great while to discover this fact; but it is now so palpable that Cincinnati is now the center of new railroad improvements—not so much as to new lines, as to new improvement. In view of this state of things, we will proceed with our review of some of the new schemes.

1. The *Junction Railroad*, as our readers know, as a road from Cincinnati to Indianapolis via Hamilton. Two difficulties have been obvious since its completion. The first is, that the competition with Indianapolis, as a point, is so great, that the trade there can not be depended on for profit. The second is, that it is *dependent on the Cincinnati and Hamilton road* for an entrance into Cincinnati. In consequence of this, we had recently an appeal to the merchants of Cincinnati to make the road, called the Muncietown road to bring trade from North east Indiana, on the Junction road to Cincinnati. We believe this effort has been successful. To meet the second difficulty, we learn, that surveys are made by the Junction Line, direct west of Millcreek, through College hill, to Cincinnati. If this really were done, it would produce some important results. The line from Hamilton would be five (5) miles shorter than that by the Cincinnati & Hamilton road, and would undoubtedly, divide the trade from Hamilton to Cincinnati, with the present road. If the money can be found, it will make the capital in the Junction road much more profitable. It would not be strange, therefore, to see this new scheme perfected. We see at once, this short line to Hamilton, and from the "Junction" through Muncietown, will give the best and cheapest route to Cincinnati, from a considerable portion of Indiana. We see also, that coming on the west bank of Millcreek, it will meet with few or none of the difficulties, which beset the other roads coming through what we may call Millcreek lake.

2. Let us pause again, to consider the new enterprise of the "Short Line"—Dayton road. We suggested last week some difficulties that scheme would meet with; among

others legal obstruction; not, perhaps, wholly known to the projectors. But we say nothing of them. The curious part of this enterprise, at least to our minds, is that having undertaken to reach Cincinnati without the aid of other roads, it seems that the "Central" and its colleagues are to accept the Baltimore road for the last eight miles; however, we presume this is only a temporary arrangement, and there is some plan of making the new road independent hereafter. Our own opinion has uniformly been that railways coming from the north and east of Millcreek should come through the projected tunnel; but *nous verrons*—time rivals destiny. Looking to the "Short Line" as a *fait accompli*, we have been curious to see what would be the "Central Line" to New York. It would be composed thus:

1. Short line.
2. Dayton and Springfield.
3. Springfield to Columbus.
4. Columbus to Cleveland.
5. Cleveland to Buffalo.
6. Buffalo to Albany.
7. Albany to New York.

This route would be 117 miles from Cincinnati to Columbus; thence 135 to Cleveland; thence 180 to Buffalo; 298 to Albany, and 150 to New York. In all 850 to New York. This is longer than other routes; but we suspect that it can be run in as short time as any. We see no reason why an express train from Cincinnati should not be run to New York safely, without change of cars, in twenty-eight hours. But we are not discussing routes, we are only pointing out what is doing and what may be some of the results.

3. Looking now to a "short line" to the South, what would it be? We have discussed this so often, in so many forms, that it seems we could say no more; but still there is some room for reflection. Cincinnati chose Chattanooga as her southern point. One gentleman says: go to Chattanooga by way of Nashville; another says the "Short Line" to Louisville gives you a good connection with the Southwest. Yes, but that is not the idea that is in our minds, and is not the plan to give Cincinnati a new trade, and, in fact, to give her the command of the trade of the South, she must have a trade *direct* to the center of the South. This is the whole problem, and there is no prospect in reaching a solution in any other way. What point in the South should we select? Atlanta is quite far enough, though that line would bear us to Apalachee Bay (Florida); and a road from Paris, (Ky.) through Loudon (on the old ridge road) would be a route which would lead us to the heart of the Southern railroad system. We do not say this in order to advocate particular routes, but to show what is the leading idea of a short line Southern road. It may cost quite as much to go on the direct route as on a circuitous one; but the road will be a far better one for the interests of Cincinnati.

Virginia Notes.

EDITORIAL CORRESPONDENCE.

RICHMOND, VA., July, 1870.

RAILROAD RECORD:—In my last I said I was snugly ensconced in the Spotswood House, one of the most comfortable, home like and best kept hotels I had ever stopped in.

So satisfied was I with my entertainment here that I had made up my mind to rest a few days, and recruit from the fatigue of my journey hither; and in hopes that by the time I started out again the heat would abate; enough at least to bring the mercury low down in ninety. But the fates were against me.

One of the officers of the R. D. & P. Railway has learned of my connection with the RECORD, and with true Virginia kindness sent me a pressing invitation to participate in the pleasures of an excursion with the Virginia Legislature to Yorktown and return.

I accepted this offer, and the next day, at the appointed hour, was on board the cars with the merry set of gentlemen who have charge of the political interests of the Old Dominion.

In our journey to West Point, at the confluence of the Pamunkey and Mattaponi rivers we passed over the battle fields of Seven Pines and Fair Oaks, across the Chickahominy river, at the point McClellan landed his forces for his Peninsula campaign; and near the old Custiss mansion, where Washington first met, courted, and married his wife Martha, and now owned, together with the old Washington estate, by one of the sons of the Confederate General Robert E. Lee.

This was classic ground, and fraught with great events of Colonial days, as well as those of the later and more terrible strife.

The friends who accompanied me had served upon the Southern side, all through the battles upon this section of the country. They had been eye-witnesses to the desperation and heroism of both armies, and of the fearful slaughter that had covered this whole ground, for miles in every direction, with dead and dying men and horses; and as we passed localities of note they were kindly pointed out to me, and the events and incidents that render them famous narrated.

The trip from Richmond to West Point, the head of York river, was quickly made. The road is in good order; the running was as even and steady as upon the best of our Northern roads. Superintendent Dodemea was in charge of the train. President Buford was among the passengers.

At West point we were transferred to a fine steamer, ready for the occasion, and soon out into the stream, and *en route* to the Sea.

West Point is another of the speculative localities, where the commercial city of the South is to be erected. And I am told that the ground all about is already in the hands

of a company of capitalists, who are making extensive preparations to put the lots upon the market.

What a fine plat and a deal of puffing and blowing will do towards selling town lots is notorious in America, and something wonderful may come in this way, out of this speculation; but the great city will not cast its shadow in this part of the York, and somebody will be badly fooled.

Aside from a marsh of small extent the ground is dry, lies well enough to the stream, and the surrounding country is fertile, and there is timber and building material, and many of those industrial resources necessary to the prosperity of such an undertaking. But the York at this point is shoal water; not to exceed an average depth of ten feet. The channel is somewhat deeper, but even this is inadequate to the demands of such a trade as such a place must have. It may make a pleasant little village for the denizens of Richmond to visit, and feast upon the York river oysters, fresh from their native beds, and to rusticate in; and for the transhipment of passengers from the railway and boats: beyond this I think it will not amount to much for a long time, if ever.

The York river spreads out beautifully as it glides towards the bay. The weather was hot, the air still, and the water smooth as a mirror. I viewed with great pleasure the undulating and well cultivated shore lands, and the outline of the horizon that shut in the scene. It was like a great panorama passing gently in review.

As we approached Yorktown I heard shouts and huzzas upon the shore; a glance showed me a lot of happy, dancing, skipping negroes, that were making for the wharf, where our boat was to land. They crowded about the posts near the end of the pier, and were ready to catch the rope, cast the loop over the timber, haul out the plank, and do anything, and all in the greatest glee imaginable.

The Legislature scrambled out in any and every way it could, and we marched up the hill into the old town. And a queer old place it is. Its location is beautiful, high from the river line, fronted by a clean sanded and pebbled shore, with a rich country back of it. There is a good hotel here, sustained principally by visitors from other parts of the country, who come here to bathe in the river, live upon the fish, oysters, and soft shelled crabs, that abound here; and recruit from the languor of excesses and fast living elsewhere. The place has a few ordinary business houses, that I learned were pretty well sustained. But the central object of interest is the old Nelson mansion; the residence of Virginia's Colonial Governor. It is a good sized two-story building, well built of brick and lime, brought from England. The walls are very thick; the doorway large, arched, and heavily cased; the window high from the floor. There is the old fashioned English

great hall, and rows of finely finished lofty rooms on each side. In the east gable end are the marks of cannon balls, fired during the revolution. The building is in a splendid state of preservation. The old wooden panels inside, and the joints and fastenings are all as true and as firm as when placed there. This was no Yankee job work. The yard about the old mansion is in a dilapidated condition, and is sadly neglected. Some member of the Nelson family owns the house and occupies part of it; the rest is let to some of the workmen about the town, who live there with their families.

About forty rods from this house, low down in the bank, and facing the river, is a curious opening known as Cornwallis' Cave. It is equal in size to a room ten feet square. Extending from this chamber, toward the old house, is a passage way big enough to admit a large sized man at the mouth; it is bricked and arched, and is said to extend into the basement of the Nelson mansion.

I could find no one who had ever made the passage through, or had even heard of any one doing so, yet it is believed to extend through, and all sorts of queer stories are told about it, principally, however, by the negroes. I crept into this entrance some little distance, and actually thought of immortalizing myself by going through, and rising up in the basement of the old domicile and scare the occupants. But the way seemed to get smaller, or I got bigger, besides it was awful dark, and the air grew foul and sickening, and I did, what I dislike to confess, viz: *backed out*.

Although during the last war there was no fighting here, there are extensive fortifications cast up close about the town. This was the work of Gen. Macgruder and his army, and this locality the scene of his wonderful military maneuvers, by which with a few thousand men, he kept twenty times that number on the federal side at bay. I heard this exploit highly extolled by one who knows, and spoken of by others intelligent upon such matters, as one of the most masterly pieces of strategy of the war.

The stone monument that marked the spot where Lord Cornwallis surrendered to Washington, and that closed the revolutionary war, and the old apple tree spoken of in the early history of the country, were destroyed during the last war, and the very spots where they stood is already a question in dispute.

The allotted time for our stay at this quaint old town had expired—the big bell upon the steamboat was ringing steadily, and occasionally the steam whistle would shriek and scream until its wail would come back from the bay and rivers beyond. The legislature gathered in from all quarters of the land side, and in a few moments afterward we were afloat again, and fast wending our way up stream.

The trip home was quite as happy as it

was out. Everybody seemed to be delighted. There was not a thing to mar the pleasure of any one of the party. All were merry, none were boisterous. In every respect it was a most admirably managed affair, and does great credit to the gentlemen who directed it.

For myself, as I met the hearty welcome of the host of the Spotswood with one hand, I extended the other to the gentleman who had invited me to this trip, and thanked him for his kindness to a stranger, and for enabling me to register this among the pleasantest days of my life. CELINA.

The New Tariff.

We give below the changes made by the new tariff in the duties on iron, steel and metals, and the manufactures thereof, to go into effect January 1, 1870. Articles of these classes not mentioned remain as before:

On iron in pigs, \$7 per ton.

On cast scrap iron of every description, \$6 per ton

On wrought scrap iron of every description, \$9 per ton.

Provided, that nothing shall be deemed scrap iron except waste or refuse iron that has been in actual use, and is fit only to be remanufactured.

On sword blades, thirty-five per centum *ad valorem*.

On swords, forty-five per centum *ad valorem*

On steel railway bars, one and one-quarter cent per pound; and on all railway bars made in part of steel, one cent per pound: *Provided*, that metal cemented, cast, or made from iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as steel: *Provided*, that round iron in coils, threesixteenths of an inch, or less, in diameter, whether coated with metal or not so coated, and all descriptions of iron wire, and wire of which iron is a component part, not otherwise specifically enumerated and provided for shall pay the same duty as iron wire, bright coppered, or tinned: *And provided further*, that steel commercially known as crinoline, corset, and hat steel wire, shall pay duty at the rate of nine cents per pound and ten per centum *ad valorem*.

On rough or unfinished grindstones, \$1 50 per ton; on finished grindstones, \$2 per ton.

On hair pins made of iron wire, fifty per centum *ad valorem*.

On sporting gun wads of all descriptions, thirty-five per centum *ad valorem*

On manufactures or articles of nickel, niobata, or white metal, argentine, German silver, and the like mixed metals, and of aluminum and its alloys, forty-five per centum *ad valorem*

The following articles, among others, are added to the free list: bells broken and bell metal broken, and fit only to be manufactured; anthracite coal; emery ore or rock, not pulverized, not ground—*Iron Age*.

According to a recent official return, the assessed value of the real and personal estate in New York city, in 1870, amounts to \$1,047,424,049, against \$964,257,164 in 1869, or an increase of \$83,166,885. The value of the real estate is assessed at \$742,134,350, in 1870, against \$683,114,468 in 1869, giving an increase of \$59,019,882. The value of the personal estate is assessed at \$306,292,699 in 1870, against \$181,142,696 in 1869, giving an increase of \$24,150,003.

The Cultivation of Way Business.

It is stated that the new managers of the Jackson railroad, now virtually consolidated with the Mississippi Central, will encourage immigration by all possible means; that Mr. McComb, since he has had charge of the Central, has settled over two thousand immigrant families along its route, and that he proposes to induce a like settlement on the Jackson road. Coupling this statement with several rather decided indications, practical as well as verbal, of a purpose on the part of the McComb management to scale down the rates and swell the bulk of its way business, we have a pretty clear insight into the nature and philosophy of the policy which it is initiating. It is a policy which the ablest thinkers on the subject of railroad enterprise and administration have long commended as the wisest, safest, and durably the most profitable. The late management would, no doubt, have adopted the same policy, but for the drawbacks of incumbrances and risks from which the present one, favored as it is by two friendly State governments, the Louisiana and the Mississippi, ready to assist it with special legislation, may account itself almost entirely exempt. But let us pass; there is no need in this connection to recriminate upon the invidious distinction here casually alluded to.

What we wish to dwell on is the great principle underlying the policy of cheapening way freight and travel, and of encouraging in this and all other methods the interior country traversed by the railroad. It has been a very common mistake to look upon what is called through business—that is to say, transportation from one terminus to the other—for the grand resource to be sedulously cultivated, as the chief dependence of a road which has any pretensions to magnitude and extended enterprise. To be sure, through business is a highly valuable aid. It ought to be facilitated and simplified to the utmost extent; and to this end it would be a good thing if the numerous sections of the road, under separate charters and proprietorships, connecting the extremities of the country, North and South, or East and West, were consolidated under a single operative administration. But let it not be forgotten that the paramount consideration in making the most of opportunities for doing a large through business ought to be the increased ability thus afforded to lay, broad and deep, the foundation of a durable way business. The country which a road helps to populate, whose productive resources it develops as they never otherwise would or could be developed—which, indeed, without the vivifying presence of the road would be comparatively a desert—is the true basis upon which to build its prosperity. It can always securely rely upon this: it can never securely rely upon any other. A thousand contingencies, which it is impossible to foresee and provide against, may interfere at the extreme terminal points of any railroad system to divert business or beat down profits. At those points it is bound to encounter the competition of water transportation. There is a very large measure of business which railroads can never take away from enterprises identified with the navigation of seas and rivers. It would be suicidal folly for a railroad interest to stake its destiny on an effort to absorb the collateral carrying, trade of ships and river craft, to the neglect of the wants of the populations skirting its road, and of the business which the interior regions traversed by the road, under a liberal system

of freight and passenger accommodations, would yield.

We hope to see the policy here outlined developed on all the railroads of which this city is soon to be the center. The New Orleans, Mobile & Chattanooga railroad will be operating between this city and Mobile about the end of the present summer perhaps. The New Orleans, Baton Rouge & Vicksburg railroad has broken ground on one of its sections, and will shortly have all of them under contract. With its Grosse Tete and Red river connections, it will afford the means of speedy communication between this city and interior regions of Louisiana and Mississippi, which have been strangers to railroads, and for the most part destitute of regular steamboat facilities. But the greatest immediate value of either of these roads to the commerce of New Orleans will be lost if their managements fail in an absorbing ambition for a great through business, to promote wayside settlement, improvement and production, by studiously adjusting their tariffs of charges for freight and travel from the interior to the city to these ends. In this way the population extending along various lines centering here for hundreds of miles, would be, in a certain sense, suburban to the city, and one of the very best bases which it could have for its prosperity. Hence it clearly behooves all our commercial classes to co-operate heartily with railroad policy which is favorable to the growth of communities in that suburban relation. Let these feel that they are not to be subjected here, or on the way hither, to any exorbitant or unnecessary charges—that they are not to be treated with quasi hostility as strangers only fit to be flaxed and fleeced, but rather as a cherished part and parcel of our metropolitan citizenship, with interests entitled to the same consideration as those of the oldest residents within our municipal borders.—*New Orleans Bulletin*.

RAILROAD BOND INDEBTEDNESS OF COUNTIES IN IOWA.—The following is the amount of judgments obtained against counties in Iowa on railroad bond indebtedness, at the recent term of the United States Circuit Court:

Lee.....	\$49,115 83
Henry.....	45,373 86
Wapello.....	4,683 08
Louisa.....	5,807 52
Des Moines.....	4,432 94
Iowa.....	2,583 96
Poweshiek.....	6,366 42
Johnson.....	4,402 40
Pottawatomie.....	1,255 05
City of Davenport.....	1,037 43
City of Duquque.....	64,985 64
City of Burlington.....	17,989 09
City of Keokuk.....	47,112 00
City of Iowa City.....	4,075 60

Of these amounts it is reported that Lee County has begun to pay her bonds, a surplus mule being the first article offered in liquidation of the debt. The mule was seized by the officer, and although a large number of persons were present, no one bid on that mule. Of course, no bidders, no sale; so the mule was remanded to the stable to eat himself up, at the public expense.

—It is announced that the Pennsylvania Central are to have such a controlling interest in the Camden and Atlantic Railroad Company and the Philadelphia and Trenton roads as will make Atlantic City by the sea a port of entry.

Railroad Arrangements for the State Fair.

I. The Cincinnati, Hamilton and Dayton, and the Dayton and Michigan railroads will carry passengers at half the usual rates, or one fare for the round trip from any point on either of the roads to Springfield and return. Freight for the fair will be carried free; that is, the shipper pays full freight to Springfield, and when returned to the original point of shipment by the original owner, the advanced freight money will be refunded.

II. The Sandusky, Dayton and Eastern will carry passengers for one fare from any point on the line of railway between Dayton and Sandusky or Springfield and London. Freight same as in No. 1.

III. The Pan-Handle and its leased roads, comprising:

- (a) The railway from Columbus to Pittsburgh, known as the PAN-HANDLE.
- (b) The railway from Columbus to Indianapolis and Chicago known as the C, C. & C.
- (c) The railway from Columbus to Cincinnati, known as the LITTLE MIAMI.
- (d) The railway from Xenia to Richmond, Ind., known as the DAYTON AND WESTERN.
- (e) The railway from Zanesville to Cincinnati, known as the MUSKINGUM VALLEY ROAD.

Will carry passengers for one full fare the round trip, from any point on either of the roads to Springfield and return. Also, will carry freights free same as No. 1.

IV. The Columbus and Hocking Valley Railroad will carry passengers for one full fare from any point on its line to Columbus and return. Also, will carry freights free, same as No. 1.

V. The Cleveland, Columbus and Cincinnati Railroad, with its branches from Galion to Indianapolis, and from Delaware to Springfield will carry passengers for one full fare from any point on either of the routes to Springfield and return. Freight same as No. 1.

VI. The Marietta and Cincinnati Railroad will charge full freights to Springfield and full freights to return; but when the freights are returned by the original owner, then the freights charged both ways will be refunded.

VII. The Atlantic and Great Western Railroad will charge one full fare from any point between the eastern State line and Dayton, and return, and freight as in No. 1.

VIII. The Central Ohio Division of the Baltimore and Ohio Railroad, as well as the Erie Division of it, (formerly Sandusky, Mansfield and Newark,) will carry passengers from any point between Sandusky and Newark, and Wheeling and Columbus, for one full fare the round trip.

RAILROAD PASSENGERS.—The Supreme Court of Pennsylvania, Judge Agnew delivering the opinion, has recently decided that, where a passenger being carried on a railroad train is injured without fault of his own, there is *prima facie* a legal presumption throwing upon the railroad company the burden of disproving negligence. This, it is stated, is the rule when the injury is caused by a defect in the road, cars or machinery, or by a want of diligence or care in those employed, or by any other thing which the company can and ought to control as a part of its duty to carry passengers safely. This rule, however, is not conclusive, and the railroad may rebut the presumption by showing that the injury arose from an accident which the utmost skill, foresight and diligence could not prevent.

The Coming Railway.

The "coming man" has so long absorbed public attention, that coming events, though they cast their shadows before, appear to be unheeded. The remarkable success which has attended the narrow gauge railway in Wales, so much talked of a few months ago, affords a subject for speculation, or suggests, in fact, the possibility of a revolution in railway construction. The length of this road, from Port Madoc to Festiniog, is fourteen miles, the line of route being a rugged mountain, one with a succession of sharp curves and a continuous rise by gradients averaging about 1 in 85. It was built cheaply, is worked at a singularly low cost, and yet is found quite as effective for local traffic and travel as roads of wider gauge and infinitely more costly construction. The gauge, to be exact, is one foot eleven and a half inches, and the locomotives used weigh about ten tons *coaled and watered*, with tenders whose avoirdupois but slightly over a ton. The passenger cars are proportionately light and diminutive, though so arranged as to afford accommodations as ample and comfortable as the enormous carriages upon ordinary roads and are in strange contrast with them in the proportion of dead weight to each passenger. A few weeks ago at a trial of the engines on this road, the "Little Wonder" hauled a train of 125 trucks and seven passenger carriages, weighing nearly 115 tons. It glided with perfect smoothness round the constantly recurring sharp curves of the mountain, overcame grades with perfect ease and made the distance of 14 miles within fifty minutes. This experimental line has been for several years in active operation and carries daily a considerable number of passengers to and from Port Madoc, and a large amount of heavy freight—the latter consisting principally of valuable slate and building stone from the Festiniog quarries. The cheapness with which it was built, the peculiar lightness of its equipment, and the handsome profits it has paid to its stockholders—not less than fifty per centum annually—have led to the construction of similar roads in other parts of Wales. The attention of large numbers of capitalists and civil engineers has also been strongly attracted to the subject. Here, then, we have a railway which may be constructed for a few thousand dollars a mile, the cost of whose equipment is a mere trifle. As a local road connecting with a main line it can be built more cheaply than a common plank road, and from the lightness of its rolling stock is subject to very little wear and tear. Such a road might be built by neighborhood corporation anywhere. It would cheapen the cost of transportation to a market; it would largely enhance the value of the lands through which it passed; and, if properly managed, would pay to the stockholders from the very outset a handsome profit on their investment. Why may we not see the experiment tried here? There are plenty of isolated interior localities for which it would be just the thing.—*R. R. News.*

—It is proposed to build a branch of the Chicago & Iowa Railroad (Aurora to Rockelle, Oregon, Forreston, etc.) from Clinton, DeKalb county, Ill., north by east to Sycamore, and thence north west to Rockford. An election has been called in Monroe, the north-west corner township of Ogle county, to vote on a proposition to donate \$40,000 to this proposed road.

The New York Elevated Railroad.

The West Side Elevated Railroad, extending from the Battery, at its lower terminus, to Thirtieth street, along the line of Greenwich street and Ninth avenue, has been opened to business long enough to enable the public to arrive at very correct ideas concerning it, and as far as we have been able to learn from inquiry and observation, the voice of public opinion has long since pronounced it a failure. So far, it has secured considerable patronage, during the semi-occasional intervals between breakdowns and accidents in which it has been possible to run cars; but there is nothing to indicate that it can ever be made a financial success, since but few of those who pass over it once are well enough satisfied with their experiences as to care to repeat them. Considered simply as an experiment in engineering, there is nothing in the structure or the operation of the propelling machinery to enable an impartial and disinterested critic to pronounce it a success; since it is constructed with but little apparent regard for scientific or mechanical principles; and although it has been found possible to dispatch cars back and forth over the track, the road, as far as completed, does not realize in any sense, the expectations of those who have furnished the money expended upon its construction. The method of propelling the cars by means of a succession of endless wire cables, is not a success in any respect, as the motion is uneven and disagreeable, and the gradual loss of impetus in passing over the bridges between the sections, necessitates a succession of sudden and unexpected jerks as the tracks attached to the cables come in contact with the spring affixed to the under part of the car. The worst feature of the road, however, is the weakness of the structure, sustained by single posts, and possessing no side braces or supports to overcome the lateral motion of the heavy cars balanced upon the spreading arms that hold the tracks. These defects should have been discovered before a hundred feet of the road had been built, if not sooner, and we are somewhat surprised that the plan upon which it is built was not long since abandoned as impracticable. From personal experience, we are forced to the conclusion that it is neither safe, rapid, nor pleasant; and when it shall have ceased to be a novelty, there is but little reason to believe that it will command more than a very limited patronage. But even if it were a success in all respects, it could not carry passengers enough to make the enterprise a profitable one, since the traffic over the single track is necessarily limited. We regret our inability to speak more favorably of the road, but a due regard for candor compels us to say that it does not meet in any essential particular, the expectations or requirements of the traveling public. It can not be denied that we need better and more rapid facilities of transit within the limits of the city than are afforded by the surface roads and omnibus lines, but something different from the elevated railroad is needed, and, for the sake of those who may be induced to furnish the capital needed to complete the work, we hope the company will not carry out their original intention of extending the road beyond Thirtieth street.—*Iron Age.*

There are twenty furnaces now in operation between Ironton and Chillicothe, making an average of 2,500 tons each of pig metal per year, of a total of 51,000.

Railway Returns.

At a recent legislative investigation in this State it was found desirable to ascertain the effect of grades and curves upon the cost of operating a railway. It was also necessary to tell what portion of the expenses should be charged to freight, and what part to passenger transportation. In lack of any positive information upon these points to be got out of railway men, recourse was had to the Annual Returns made by the various corporations to the Legislature; and, as usual, those documents were found entirely free from all information of any value upon the points in question. If the annual returns to the State were intended to conceal the real detail of operation of the roads, they could hardly do it more effectually. A portion of the roads, doubtless, do not care to say too much regarding their operating expenses, as it would be plainly seen that a wretched adaptation of motive power, or slovenly mode of using fuel, and other like sins, were eating up the dividends. Another portion of the roads, and a large portion too, very probably do not themselves know the cost of working their trains. These things are not as they should be. The practical working of ten thousand miles of road for the past twenty years, and of thirty thousand miles for the past ten years, should have taught us the need of so keeping railway accounts that we could at any time tell the precise effect of any elements of expense upon the cost of transportation. Our best railway talent, however, has been so much engaged in railway construction, and in the wars between competing lines, that but little time has been left to study railway science. It is to be hoped, now that so many of our large roads have become well established, and have well organized bodies of officers, that proper attention will be paid to these all-essential details of operation, a thorough knowledge of which is the only route to economy.

Uniformity in the mode of keeping accounts is very much to be desired. It is almost impossible to compare the results of operation upon different roads, on account of the different distribution of expenses. It would be a very easy matter to determine the effect of grades upon the cost of working, if we had the amount of work done and the exact cost in detail of doing it, upon two roads widely different as to grades—say, for example, upon the Baltimore and Ohio and the Illinois Central railways. But when we have about half the data furnished to us, and are left to guess at the rest, we need not expect any very reliable comparisons. Is there any difficulty in keeping the accounts of railways properly? Not the least. The French and other European roads have done it for a long time. Is there any authority that can oblige the companies in the United States to make returns with sufficient accuracy to enable us to answer the numerous questions that are constantly occurring? We should suppose that the State, from which the road obtains its right of existence in the first place, had this authority. Had the State of Massachusetts obliged the various companies within her limits to make the proper returns for the last ten years, she would not have seen her Railway Committee floundering in a maze of conflicting opinions, in regard to the expense of operation, from which they emerged about as wise as they went in.—*American Railway Times*.

Fluctuations of Securities.

It is curious in comparing past years with the present to notice the many fluctuations of railroad securities, at one time apparently worthless, and at another, under more favorable management, springing up and maturing into a steady and remunerating value. If the past does but repeat itself in the future we may yet see the Hartford & Erie compete successfully with its flourishing rival. Among these growths of the last ten years, there are none more striking than the Vermont Central, Ogdensburg and Rutland railroads. Nine years ago the first mortgage bonds of the Vermont Central were sold at 10 per cent., \$100 for \$1,000. Since then the company has given a new bond of 50 per cent., \$500 to every holder of \$1,000, and \$1,000 can now be realized for a purchase of \$100. The second mortgage, at the same time, sold as low as $\frac{1}{2}$ per cent., \$6 for \$1,000—now at 40 to 42. The gross earnings of the road the past year amount to nearly \$2,000,000.

In 1862 Ogdensburg first mortgage sold at 61. They are now converted into an 8 per cent. preferred stock, selling at 110; second mortgage sold at \$20 for \$1,000, now common stock of Ogdensburg & Lake Champlain, and selling at 90, or \$90 for \$20 paid.

Rutland & Burlington first mortgage bonds were sold as low as 18 per cent. In 1868 the company was reorganized as the Rutland railroad, and the first mortgage bonds are now represented by the preferred stock of the Rutland railroad, and were converted for principal and interest at an amount equal to \$2,370. The stock now sells at 83, being 7 per cent. free of Government tax. The second mortgage Rutland & Burlington bonds, were, in 1862, almost valueless, selling at \$10 for \$1,000. These bonds are now common stock of the Rutland railroad—converted at the rate of \$1,950 for each bond—the stock now 30 to 32.—*Boston Journal*.

BALTIMORE, PITTSBURG AND WESTERN RAILWAY.—A Youngstown letter, of date the 19th, says: "A surveying party within the last few weeks has been engaged on a route from this place to Akron, with a view to test its feasibility as a part of the proposed extension of the Connellyville road west. Two routes are proposed, one to follow up the valley to Niles, and then to strike west; the other to leave the valley near Youngstown, following some of the ravines running west from the Mahoning or Mill creek, which enters it from the south of its confluence with the Mahoning. The engineer reports a good route, the heaviest grade not to exceed fifty feet to the mile, to the dividing ridge between the Mahoning and Neander, near the center of Austintown, from which point to Akron a road may be run in nearly a direct course and with easy grades and curvatures. It is believed that we can offer a better line in respect to grades, curves, distance, and expense of construction than any of the competing routes, and as to the amount of business it will furnish this line, running a very considerable portion of the distance through a region rich in minerals and studded with furnaces and rolling mills, is far ahead of any other. We think we can make a showing both in the advantage of route and subscription to stock, that will make a strong impression in our favor. Up to Tuesday the subscriptions secured at Akron amounted to \$250,000, leaving but \$50,000 to be raised to complete the amount required, \$300,000. It was thought the necessary sum would be subscribed on Wednesday.—*Salem (Ohio) Republican*.

A Mountain Railroad.

Mr. H. J. Kerr Porter thus describes in the *London Times* his ascent by the Rigi Railway: "A wagon laden with about a ton and a half of timber prepared for sleepers was ready, and on this twenty-five passengers took their seats; and we started, propelled by an engine, which is of peculiar construction. In twenty minutes we traversed 4,700 feet, and were about 1,170 feet above the level of the lake from which we had started; we found thirty-three men at work laying down sleepers and rails; the transverse sleepers are 6 inches wide by 4 inches; the ordinary rails are bolted to those sleepers, which are 2 feet apart, and at 6 inches outside the metal rails longitudinal beams, 6 inches by 6 inches are bolted to the sleepers; in the center a metal rail is firmly bolted, in which there are openings to receive the cogs of the center wheel of the engine, which revolves with the axle, the steam power being applied to a cog wheel on each side at equal distance from the ordinary wheels and the center one above described; the brakes are applied to the ordinary wheels, which are like the wheels of any carriage, and are about 2 feet 6 inches in diameter. The boiler and furnace are not placed horizontally, as is usual, but stand upright, having, while on a level, a considerable incline forward; when ascending the mountain the boiler is consequently quite perpendicular, and the floor of the tender perfectly level—the tender and engine being in one, and supported by the four small wheels, one of which I have described above."


HOW TO UNLOAD GRAVEL CARS.—A labor saving contrivance for this purpose now in use on the Southern Minnesota railroad is thus described: "The invention consists of a mammoth double mould-board plow, placed upon the rear car of the train, which, when loaded by the usual gang of men, is conducted to its destination, where by simply uncoupling the engine from the train and coupling it to the plow, which is done by means of a long cable that traverses the length of the train, the engineer whistles 'on brakes,' the engine and plow move forward, the train remains stationary, and the gravel is quickly and neatly discharged on the track. So one engine and set of men keep two trains of cars moving, or, in other words, do double the work formerly done with the same expense. On the occasion spoken of the conductor took a loaded train over half a mile, unloaded it, and returned to the pit in eleven minutes and a half, where he found the other train loaded and in readiness to move out."

TO PREVENT THE DECAY OF WOOD.—An English journal gives the following: "A process has been discovered for the prevention of the decay of wood. As the result of five years experience, a paint is recommended, which at the same time possesses the advantages of being impervious to water. It is composed of fifty parts of tar, five hundred parts of fine white sand, four parts of linseed oil, one part of the red oxide of copper, in its native state, and finally one part of sulphuric acid. In order to manufacture the paint from this multiplicity of materials, the tar, chalk, sand and oil are first heated in an iron kettle: the oxide and acid are then added with a great deal of caution. The mass is very carefully mixed and applied while hot. When thoroughly dry, this paint is as hard as stone."

Effect of the Earth's Rotation on Railway Trains.

A short time ago a paragraph made the rounds of the German newspapers with the startling statement that on railways constructed in a direction running north and south the engines exhibit a tendency to get off the line on the east side, or at least to press more heavily against the rails on that side, and that this tendency is greater the nearer the line lies in the direction of the meridian, owing to the rotary motion of our planet. Dr. Wiegand, Professor at the University at Halle, says on the subject, "if not altogether a delusion, but the result of real observation, it is at least incorrect in theory. In connection with the diurnal rotation of the globe, it is quite true that in a railway drive in a northerly direction there would be a trifling pressure on the eastern line of the rail, but on the return journey it would be compensated by a pressure on the western side. In the latter case—that is to say, in the direction from the pole to the equator—the same phenomena would be shown as with the trade winds. An engine traveling over a railway in a northerly latitude, where the rotation is comparative slow, would naturally exhibit a tendency to retardation, or leap over the side on approaching a lower latitude, whilst in a direction from the equator to the pole the pressure would be reversed, and lean over to the east. It appears to be of importance to place this fact in a right light, as it is within the bounds of possibility that a railway company, in order to neutralize or make a compensation for the effects of the above phenomenon might be induced to fix the rails higher on the east side than on the western, which on the return journey southward would only increase the danger of the engine getting off the rails." It may be asked how great is the amount of pressure that a railway engine can exercise on the eastern or western line of rail in consequence of the earth's rotation; the learned professor above mentioned has calculated it for a thirty ton locomotive to be 642 lb., and adds: "I must leave it to railway engineers to decide whether such a trifling pressure, uncombined with other causes, would be sufficient to occasion an accident by forcing the train to get off the rails.—*Correspondence London Railway News*

PHILADELPHIA AND ERIE R. R. LEASE.—An election was held in Philadelphia on the 20th inst., by the stockholders of this company, to approve of the new lease of the road by the Pennsylvania Railroad Company. Prior to the election a protest was presented on behalf of the Cleveland, Plainsville and Ashtabula Railroad against allowing the Pennsylvania Railroad to vote on nearly forty thousand shares owned by that company, on the ground that the new lease is in favor of that company, and the company should not be permitted by its own vote to discharge themselves from the obligation of the former lease. 63,164 votes were cast in favor and 2,717 against—deciding the question in favor of the new lease.


 The total product of pig iron in the United States in 1869 was 1,916,641 tons, as follows: Anthracite pig iron, 971,150; raw bituminous coal and coke pig iron, 553,341; charcoal pig iron, 392,250. The product in 1865 was 931,000 tons, it having more than doubled in four years.

Adjustable Gauge Car Trucks.

To enable freight cars to run from New York to San Francisco over railways of different gauges without breaking bulk is a manifest desideratum, and one which could only be secured in one way, viz.: by making the car trucks with wheels adjustable on their axles, so as to conform to any required gauge by being conveniently changed from one to another. Numerous practical difficulties have hitherto intervened to prevent the success of devices designed to secure this end, but we are pleased to learn that an invention is now being adopted on the Erie Railway by which the desired end is effectually secured. We are informed by the inventor, Mr. William B. Snow, that a car constructed with his improvement very recently left New York city over the broad gauge Erie road, loaded with freight for San Francisco, made the entire trip on time, and brought back ten tons of return freight; the result being so satisfactory to all concerned that, as above mentioned, the invention is to be adopted by the Erie Railway Company. In other inventions designed for the same purpose, recourse has been had to grooves cut longitudinally in the end portion of the axles for the reception of the fastening devices, but this, as is evident, had a tendency to weaken the axle and prove a source of trouble and accident. In Mr. Snow's improvement the axle has a radical feather formed upon it, which rather strengthens than weakens, and which, in connection with a simple movable collar, provides for the secure retention of the wheel at any required point on the axle. Mr. Snow has taken steps, through the *American Artisan Patent Agency*, to secure his invention by letters patent.—*R. R. News.*

SHENANDOAH VALLEY RAILROAD.—A contract has been concluded with A. K. McClure, counsel for the Central Improvement Company, for the construction of the Shenandoah Valley Railroad from Shepherdstown, by way of Charlestown, Front Royal, Luray, Fishersville, Lexington, etc., to the Virginia and Tennessee Railroad, near Salem, a distance of 233 miles. The road is to be entirely completed within two years, ready for the cars. The managers contemplate extending the line through the Clinch and Holston Valleys to Knoxville.

RAILROAD BONDS IN KANSAS.—A suit is pending in the State Supreme Court involving the legitimacy of local railway bonds. It is an action brought by the Missouri, K. & T. R. Co. to compel the authorities of Coffey and Davis counties to deliver to plaintiffs certain bonds voted by these counties in aid of the construction of said road. One of the principal points of the defense (says the *Topeka Record*) is a general denial of the power and right of counties, under our constitution to vote aid to railroads. The *Record*, in its comments on the case, refers at length to that recently decided by the Michigan Supreme Court.

 Previous to the war, cotton culture could not be carried on with less than \$20,000 to \$40,000 capital. Now a capital of \$1,000 in the hands of an industrious man, will raise from ten to twenty bales of cotton, worth, at present prices, from \$1,000 to \$2,000. This change will secure to the South a more homogenous population, while the real wealth of that section will be more generally distributed than it was in the days of slavery.

The Leading Wheat States.

We quote from the report of J. R. Dodge, of the Agricultural Department at Washington, the section under the head of the leading wheat growing States:

"Twenty years have wrought changes in the list of wheat producing States that are suggestive and even startling. Pennsylvania stood at the head of the list in 1849; she was sixth in 1859; and in 1869, of nine leading States, she stood ninth and last. In 1859, nine States produced less than 70 per cent. of an aggregate of 173,000,000 bushels; in 1869, nine States yielded 191,000,000 bushels, or 70 per cent. of our 260,000,000 bushels; and California, which is fourth in 1869, was not found among leading States nine or ten years ago, while Minnesota, the seventh, was at that time scarcely in existence as a State. The list is as follows:

States—1849.	Bush.	per capita.
Pennsylvania.....	15,367,691	6.60
Ohio.....	14,387,351	7.31
New York.....	13,121,498	4.33
Virginia.....	11,212,616	7.88
Illinois.....	9,414,376	11.05
Indiana.....	6,214,458	6.23
Michigan.....	4,925,889	12.36
Maryland.....	4,494,600	7.70
Wisconsin.....	4,286,181	14.00

"Illinois, fifth in 1849, becomes first in 1859:

States—1859.	Bush.	per capita.
Illinois.....	23,837,023	13.92
Indiana.....	16,848,267	12.47
Wisconsin.....	15,637,458	20.18
Ohio.....	15,119,047	6.46
Virginia.....	14,130,977	8.54
Pennsylvania.....	13,242,165	4.48
New York.....	8,681,105	2.23
Iowa.....	8,449,403	12.51
Michigan.....	8,336,378	11.12

"The figures for the leading States of 1869 are estimated, in round numbers. Representing in the proportion of production to population, California occupies the first place, and Minnesota the second:

States—1869.	Bush.	per capita.
Illinois.....	27,200,000	11.
Iowa.....	25,000,000	20.
Wisconsin.....	24,000,000	19.
California.....	21,500,000	39.
Indiana.....	20,600,000	12.
Ohio.....	20,400,000	9.
Minnesota.....	19,060,000	35.
Michigan.....	16,800,000	13.5
Pennsylvania.....	16,500,000	5.5

"With these facts before us, it is not difficult to anticipate the time when the larger portion of our wheat crop will be produced west of the Mississippi. Facts showing the decrease of yield, in each State, would be equally striking and more sadly suggestive."—[*Chicago Review.*

—Of the land granted to the Hannibal & St. Joseph Railway Company only 130,000 acres remain unsold. In 1861-2, the first years of the war, the monthly average of sales was 186 acres, at \$8 78 per acre. During the two subsequent years, the average monthly sales were 1,370 acres, at \$8 54 per acre. During the next five years, 1865-9, the monthly average was 6,757 acres, at \$10 67 per acre, and in 1869 the average per acre was \$12 62. It is thought that the remaining 130,000 acres will bring \$12 per acre, and will realize for the Company over \$1,500,000.

Railroad Items.

—The Chicago and North-western Railway Company have obtained control of the charter of the projected line of railway from Madison to Baraboo, and they propose to extend it to Winona to connect with the Chicago and St. Paul and the Winona and St. Peter Railroad. According to the *Baraboo Republic* the contract secures, under the management of the Baraboo Air Line Railroad Company, the construction of the road from Madison to Baraboo by the first day of July, 1871, and to Reedsburg within five months thereafter conditioned that \$175,000 is voted by the towns interested, and the right of way and depot grounds deeded to the company. The survey will be undertaken at once.

—The New Haven, Middletown and Willimantic Railroad in Connecticut, opened for traffic between New Haven and Middletown on the first of August. The route of this railroad is through one of the best manufacturing sections of the State, and a large number of flourishing towns, built up originally by manufacturing interests of one kind or another, will now have an outlet for their products by means of this route. The character of this line as a through route to Boston, twenty-seven miles shorter than the present line of travel, is better known, and this gives it the name of "CONNECTICUT AIR LINE."

—It appears that an alliance has been effected between the Iowa Central and Milwaukee and St. Paul, whereby the latter obligates itself to meet the former at Mason City in one hundred days. The completion of this gap will place St. Paul in direct connection with the Iowa coal fields, and when the Southern connections of the Iowa Central are completed, it will furnish a short line of communication between St. Paul and St. Louis.

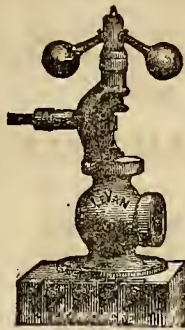
—Two thousand laborers are at work upon the Honduras Inter-oceanic Railroad, one section of which is already opened, and it is thought the work will be finished by the Fall of 1871. A line of English steamers is to be established between San Francisco and Honduras on the completion of the road. This will divert all the California and Central American trade from Panama to Honduras.

—The export of railway iron from Great Britain to the United States for the month ending May 31st, 1870, was 33,175 tons, for the same period in 1869, 25,557 tons, and for the same month in 1868, 24,221 tons. For the five months ending 31st May, 1870, 150,980 tons, against 141,634 tons in 1868.

—Norfolk, Va., has voted upon the question of subscribing one million dollars to the stock of the Norfolk and Great Western railroad. The vote was: for the subscription, 1,658; against it, 1,179—wanting forty-five of the three-fifths majority necessary under the law to carry the subscription.

—The first iron for the Northern Pacific Railway left Detroit on the 26th inst. for Duluth, Minn., on the steamer R. G. Coburn. The consignment consists of two hundred tons of first class T rail, manufactured in Pennsylvania.

—The railroads in California are all made with ties of red wood, which is very durable. In the valleys the routes are nearly level, and the grading cheap. The average cost per mile is about \$20,000.



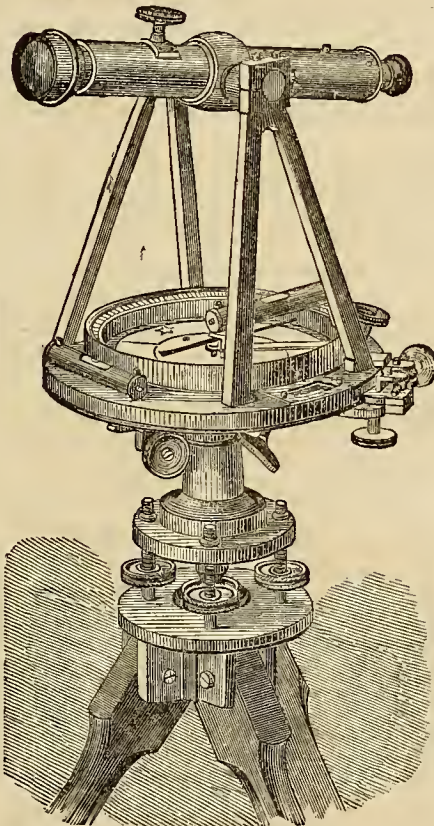
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And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
St. Louis and Springfield Express. 10.20 pm	3.42 pm	
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.0 pm	8.25 am

*The 10.10 am. train will leave Sundays, but not on Saturdays

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & O. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE
Eastern Express (Erie Railway).	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:40 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:40 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
S. Springfield Accommodation.....	2:30 P. M.	10:25 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:25 A. M.
Mancie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	10:25 P. M.
Hamilton Accommodation.....	9:30 A. M.	8:45 A. M.
do do do	6:50 A. M.	6:50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omni-buses call for passengers.

The Old And Reliable Route.



Through to Pittsburgh without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Louisville Mail.....	7.20 A. M.	9.05 A. M.
Louisville Fast Line.....	1.20 P. M.	11.15 A. M.
Louisville Express.....	5.00 P. M.	8.45 P. M.
Louisville Night Express.....	11.15 P. M.	5.00 A. M.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Supt. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty St., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Esopus with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to "Scranton." This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:0, 2:0, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:0, 7:2, 7:40, 8:0, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON,
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, AUGUST 11, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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Cumberland & Ohio Railroad.

A special correspondent of the *Commercial*, as will be seen by an article copied from that paper in another column, startles the denizens of "Sleepy Hollow" by the terrible announcement of a "secret treaty" between the President of the Cumberland and Ohio Railroad and the city of Louisville, whereby Cincinnati is again to be euchered out of the advantages of her "natural geographical position" by the far reaching policy of Louisville. It would be supposed from the "potber" made about the "secret treaty" in some of the "great dailies," that it was of as much importance and had as far reaching results on the destinies of the contending interests as the celebrated Franco-Prussian effort at doing "secret" things.

The facts in the case are simply these. Last winter the Legislature of Kentucky passed a charter entitled the "Louisville and Chattanooga Grand Trunk Railroad," the line of which it was proposed to construct through a portion of the counties in which the route of the Cumberland and Ohio railroad is located, and in which the Cumberland and Ohio Railroad had received large county subscriptions,—the very life-blood of the C. & O.—Of course, it was not supposed that the counties would vote additional subscriptions for parallel lines through their territory, and without the aid of the counties on the route it would be impossible to construct the Loui-

ville and Chattanooga Grand Trunk road. Hence, the proposition on the part of a portion of the representatives from the city of Louisville interested in the charter of the L. & C. Grand Trunk, to negotiate last winter with the managers of the C. & O. for their county subscriptions (precisely what the *Commercial* correspondent says they are trying to do now); but failing in making an "arrangement," the manipulators of the Grand Trunk brought in a bill to re-submit to the voters of the counties which road the various county subscriptions should be given to—viz: the Cumberland and Ohio (to whom they had already been given once), or to the Louisville and Chattanooga Grand Trunk, the latter expecting to enter the canvass and push its claim with the arguments of "State pride," the "leading city of the State, and the promise of a vote of two millions by the city of Louisville. This measure was defeated, not so much, however, by the efforts of members interested in the Cumberland & Ohio, because those living on the Southern portion of that line, did not care who got the county subscriptions, so long as they got a *railroad*. but by the friends of the Cincinnati Southern Railway, of the Louisville & Cincinnati Short Line, and those more directly interested in the Northern portion of the Cumberland & Ohio. In the last effort to carry this measure in the Senate, the Lieutenant Governor, the Senator from Henry, and the Senator from Campbell made the effective speeches, while some of the Senators on the Southern portion of the C. & O. line talked in favor of the measure.

It is, therefore, plain that this effort to galvanize the Louisville & Chattanooga Grand Trunk by bleeding the Cumberland & Ohio, is not a new one. Indeed, unless that can be done, unless the soul of the Cumberland & Ohio can be transmuted into it, the Grand Trunk is as a "dead cock in the pit," and will never "breathe the breath of life."

What the duty and interest of Cincinnati is, we do not propose to suggest, but there is one point prominently brought out in the editorial of the *Times*, to which we will incidentally allude, that is

"Mr. Jewett, of the Little Miami Railroad, has no hesitation in promising to iron and equip the road provided arrangements could be made satisfactory to all parties."

Of course not. These are the same promises made last winter, not only to the "Cumberland & Ohio," but also to the "Maysville & Lexington," and the "Maysville & Columbus," in Ohio, and which contributed as much as anything else toward the defeat of the Cincinnati Southern Railroad bill. Everybody understands the position occupied by Judge Jewett, that he merely "does his master's bidding," and that the "Little Miami" is but "the puppet" of a greater power—the Pennsylvania Central.

Virginia Notes.

EDITORIAL CORRESPONDENCE.

RICHMOND, VA., July, 1870.

RAILROAD RECORD:—As I wandered about over what is known as the Virginia peninsula, that tongue of land that reaches into Hampton Roads, and is bounded upon the north by the York and on the south by the James rivers, and witnessed the fertility of the soil, its splendid supply of water, its great quantities of valuable timber, and considering the healthy and genial climate in which it is situated; its proximity to the sea, and all the means of luxurious living that is to be obtained from it, I wondered why this blessed piece of earth was not sustaining a population rich, prosperous and dense as the most fertile valley of the North-west, and why its acres of deep soil are not worth as many dollars as any equal number of acres devoted to agriculture in the United States, instead of being as it now is, only partially occupied, poorly cultivated, and worth on an average about twelve dollars per acre.

I heard a great many reasons given for this lamentable state of things, and I thought there was some truth in all of them, but certain it is that the northern farmer who will go to this peninsula, purchase one of these neglected farms at the present prices, and with his capital, labor and skill put it in the condition of our best northern farms, will make a good fortune quicker and easier, and be in every respect better situated than he can become in the great West. And equally certain is it, that the merits of this section of the country have only to be made known and the northern mind disabused of that prejudice that induces the belief that the people of Virginia are hostile to them, or as it is commonly expressed, "Its worth a man's life to live there," to be the theater of an emigration of some of the best citizens of the nation, and a development that will place it among if not in the lead of the most valuable agricultural sections of the whole country. There are opportunities here for the young farmer, or the older and richer one, and the industrious workman, and the investment of capital, that are not to be had anywhere else within my knowledge. With a good settlement a few years will make these lands marketable at from one hundred to two hundred dollars per acre, and under such cultivation as obtains in the Miami valley there will be a population upon this peninsula of at least one hundred to the square mile.

Let some of our Ohio farmers, when they sell their lands and are looking about for a location, or when they want to start the boys in life, before they go West take a run over this garden spot, and I think they will be satisfied that there are attractions elsewhere than in the West. They will find the people

hospitable and glad to show them the country and give them all the information they possess about the lands and the peculiarities of the locality.

To understand the situation of the Peninsula, it must be known that from the first settlement of the country to the conclusion of the war, it was in the hands of large landed proprietors, and cultivated upon the plantation system. Now there are but few laborers to till the soil—a large part of the improved lands are going to waste and growing up with young timber, and as both armies passed over this region, and several of the severest battles of the war were fought here, the fences are destroyed, the principal buildings burned, the old orchards mutilated, and here and there the face of the country scarred with rifle pits and earth forts. Add to these afflictions that most of the land owners are in debt: and it is evident that great bargains in real estate can be had, and that the fate of this neck of land, is, that it will be divided into smaller estates, to be cultivated by the proprietors, or directly under their supervision, and with all the energy, economy and modern conveniences found at the north, and with such a population as it is thus capable of sustaining, there will rise upon the shores of the James and the York, towns and villages wherein will be transacted the business of this prosperous people, and that the Peninsula will finally meet the prediction of one of the most intelligent tourists of America: "That in a country where garden spots abound, this is capable of being made, and some day will be the choicest of them all."

New interest is added to this part of Virginia now that it is pretty certain that the Peninsula Railway is to be made.

The last Virginia Legislature removed all legal disabilities of the company that proposes to carry on this work, and arrangements are being made to start it at an early day.

Already the surveys, estimates and mapping is completed, and a well digested financial plan concluded, that will do this work quickly and well, and make it one of the best thoroughfares for local traffic as well as trunk lines for the interior trade, in the whole country.

This road will pass down the Peninsula from Richmond to Newport News, a distance of about seventy five miles. What the effect of such an improvement will be upon the value of the lands that will be supplied by it, we of the North-west can appreciate, and from the deep interest I found manifested by the people along its line, and their disposition to aid the work in every way in their power, principally by contributions of lands, they are not without a pretty good understanding of what this enterprise will do for them.

In a conversation upon this subject with General Walbridge, a gentleman of great experience and knowledge in the development of this country, and who has visited the Pen-

insula, he exclaimed, "Why don't settlers go there? How is it they pass this agricultural El Dorado, and go far into the interior and fare worse?" I could only say that there seemed to me only two reasons for it, those I have in the main already stated; first a total ignorance of the merits and prospects of this part of the country, and second, that unfounded and most unfortunate prejudice against the present occupants. If this is true, the solution of the matter is the free use of the press to herald what awaits the industrious man here, and a little association with these misunderstood people, will, I am sure, convert this prejudice into respect, if not into admiration.

CELINA.

Louisville Railroad Strategy.

A SECRET MEETING AND OFFERS TO THE CUMBERLAND AND OHIO RAILROAD TO SELL OUT.

LOUISVILLE, August 8, 1870.

It is well known to your readers, that during the struggle last winter in Frankfort, to get a charter from the Kentucky Legislature adapted to the famous "Ferguson Bill" for a railroad from your city to Chattanooga that Louisville was there with her powerful opposition. The Cincinnati charter was not only defeated, but Louisville obtained a charter to build a road from that city to Chattanooga. Now it so happens that Louisville can not build her road without passing through the counties that have already voted very large subscriptions to the "Cumberland and Ohio Railroad," and of which material aid was expected. The recent efforts of the agents of the "Cumberland and Ohio Railroad" in your city has stirred up Louisville to such an extent that we are informed that a secret meeting was held in this city last week by a number of her wealthiest and most influential men, and to which the President and Directors of the "Cumberland and Ohio road" were invited. At the meeting a number of the officers of the road were in attendance, and it was proposed that if they would turn over all the franchises and subscriptions to Louisville, the city would immediately vote to the road \$2,000,000. Should this proposition be agreed to, Cincinnati would be entirely cut off, and the road built by way of Taylorsville, and the forty-five miles between that town and the Short Line road, giving Cincinnati the connection, would be entirely suspended. The people of Cincinnati should watch these matters closely, and get, if possible, a controlling interest in the Cumberland and Ohio road before it is too late, and Cincinnati be again outgeneraled by Louisville.

JUSTICE.

—The *Denver News* says: Major W. Wagner, general accountant of the Denver Pacific Railroad, kindly furnishes us with the following statement of the business done by the road during the month of June: Total amount of freight carried during the month, 13,192,925 lbs.; freight received at Denver during last quarter June, 5,720,919 lbs.; passengers carried during the month of June, north 788, south 1,067, total 1,855. Freight received at Denver during first quarter of July, 3,419,055 lbs.; second quarter, 2,877,923; third quarter, 3,092,795 lbs. Freight forwarded from Denver during third quarter of July, 73,570 lbs.

Southern Enterprise.

Thinking with what asperity we will of the past, and hoping whatever we may of the future, there must be solid satisfaction for every American in contemplating the progress being made, and the growing spirit of enterprise manifested in nearly all parts of the South. The rapid recuperation from the unparalleled wastes of war that we here behold is especially gratifying; and the speedy transition from a condition of poverty—crippled and almost helpless—to one of comparative prosperity, is, indeed, unexampled in the history of any people, and speaks volumes for their soil, climate and recuperative powers. Few, indeed, of our Northern people realize to what extent many portions of the South were devastated by the war, and how cheerless, almost hopeless, was the prospect for many of her people. But in the darkest hours that have followed, in spite of the discouraging mistakes of our unwise rulers, one of the most hopeful signs of the times has been the evident disposition of these people to accept the situation, and work for a better, a happier future. They have an earnest, sincere hope of a grand future for the Republic in which, linked together by sacred memories of the past, which even a cruel civil war could not obliterate, they shall bear no second part.

When the farmer sows grain it is the hope of growth and harvest that gives him a pleasing interest in his fields. If he plants his orchard with trees, the hope of fruit in due time gives him interest in their culture. If he takes delight in the roots and beds in his garden it is because he has hope in the beauty of their future foliage and flowers. It is the hope of a prosperous voyage that gives to the mariner interest in his ship. It is the comforting hope of becoming an accomplished mechanic which gives interest to the toil of the apprentice. It is the blessed and gladdening hope of excellence and honor that inspires the patient student. It is the lively hope of becoming a thorough soldier that inspires the drill of the recruit. Men are interested in those who represent power because they hope for its stability. They are interested in princes and magnates from the hope of their ability to do great and worthy works. It is pleasing and assured anticipation that helmets the young aspirant with emboldening, steadfast interest in his preparatory toil. Such is the hope of the south that has nerved her to patient effort to recover what had been lost and achieve far greater prosperity. We are, therefore, glad to know that all her prospects for the present season are indeed promising.

The amount of consideration given to railway improvements is one of the marked features of this progress. Formerly these interests south were under a ban, and the dilapidated condition in which the war left the few existing facilities rendered them almost useless. But now all the most important are repaired and running. Some have been practically recreated, and new short lines have already been completed. In fact, it is impossible to read the papers of any state without noticing the earnestness with which this or the other road is commended to patronage, the numbers of these roads and the rapidity with which they are being pushed along. We could not, in much greater space than is at our command, enumerate all of the enterprise of this sort that has met our notice. One road is advancing from Cincinnati, through eastern Kentucky and Tennessee, to Chattanooga, that will constitute the stem of a system, and have influences not to be fore-

seen now. It has already revived the project for connecting Chattanooga with Wilmington, Charleston and Savannah, by completing the link between Cleveland and Walthalla, via Franklin, and this important accomplishment is likely to be recorded before long. Its importance can be estimated by observing that there is actually no eastern and western road operating for all the distance between Atlanta and the Ohio, save such as is indirectly furnished by the Virginia and Tennessee. Then Louisville is agitating the completion of her road to Knoxville, via Stanton, as well as a direct communication with Norfolk. And all of Virginia seems to smile on the purpose of making Norfolk a great maritime port by this means and others accessory to it. Nashville and Knoxville, in Tennessee, are once more calling for connection. Texas alone is building about 500 miles of road, aside from the Southern Pacific, which will certainly be put through. Houston has a road to Brazoria, fifty miles long; one to Galveston of equal length; one toward New Orleans, with fifty miles completed in the state and more in Louisiana, one of which 130 miles are finished, that has Chicago for its destination, and one of eighty-three miles from Columbus. Work is being done to carry the Central from Houston to the Red river, where it joins the Kansas roads, and the Washington county road is being advanced to Austin with such numbers of laborers that completion can not be long delayed. When the Texas and New Orleans road is repaired, as it is nearly, it will unite the Texan roads with the national system through Louisiana. The Livaca, Mexican Gulf and San Antonio road has thirty miles running, and promises to be completed. The Houston and Great Northern, just organized, has made arrangements to go ahead, crossing the Trinity and penetrating eastern Texas. The Waco Tap road is extending from Bremond, on the Central, to Waco, on the Brazos; thence 150 miles up that river. This catalogue might be almost indefinitely extended, but we have summarised enough to show that there is a singular activity of this nature in all of the southern states, and the facts with which we began show how possible it is for this activity to gain all of its ends. But no improvement is limited to its own boundaries. It begets other and stimulates the spirit of improvement. It puts money in quick circulation and calls in labor, creating a thousand demands that it also creates power to satisfy. We can look to all this with gratification and pride. These evidences of wise foresight and substantial growth involve our own welfare as directly, if not so greatly, as that of the section immediately touched.—*Railway News.*

—Something over a year ago a passenger on the Harlem Railway found a pocketbook containing \$1,045, and gave it to the conductor for the company to try and find the loser. It was duly advertised, and as the owner made no response, the finder thought he should have it back again. The company refused to fork over, and he went to law about it. They contended that by their relation to the loser as passenger they were peculiarly responsible to him for his loss, and that whatever the finder's claim was originally worth he had lost it the moment he gave the money to them. But the Court ruled that the finder was entitled to the property found as against all the world except the owner, and no owner appearing he was entitled to a verdict in the case.

Railroads in Europe and the United States.

The August number of *Old and New* contains in its "Record of Progress" the following article by Edward Howland:

The system of circulation in the body politic, is as definite and unfailing an indication of organization and life in society as it is in the animal world. From the polyp to man, the ascending gradations of completeness in the circulatory system are evidences of a more perfect organization of life, and of a higher rank in the scale of being. The same test may be applied to society; and the growth of civilization will be found always accompanied with perfecting the roads, so that the circulation of men and material can be accomplished with a less expenditure of force, and in a more thorough manner. In this view of the matter, the invention of the railroad is the most important event in the modern history of society, and is peculiarly important in this country, since it affords a means for the necessary inter-communication of the most distant portions, and for the first time in history, renders the organization of a nation spread over as large a territory as ours possible, without a centralization which represses the activity of the distant portions in order to keep them in subjection. Oregon and Maine are now practically nearer together than Boston and Pittsburg were seventy years ago.

Our railroad system is therefore a matter of national importance, and should be seriously considered by any one who is interested in our progress. The railroads are as important to the nation as the streets of a city or the roads of a village are to their inhabitants; and it is as mistaken a policy to allow them to be governed by private corporations, as it would be to place the right to our streets and turnpikes in the same hands. The people make a great mistake in ever surrendering to corporations the ownerships of railroads. There is an excuse for it; the advantage of a railroad seemed so great when they were first introduced, we did not know how important they would become, and we followed the English plan. But now let us do the best we can to remedy the error.

It would have been the best course at the beginning, to build our railroads as we do our county roads, at the expense of the county or the State, and thus have made them public property to be used for the public benefit. All of the European countries except England, recognized the importance of the railroads at their introduction; they saw how necessary it was that so valuable a right should not be surrendered by the public to any private corporation, and were wise enough to act accordingly.

In France, railways were first introduced in 1836; and there are now over nine thousand miles in operation, making an average of two and a half miles to every ten thousand inhabitants, or four and a half miles to every one hundred square miles of territory. The average cost of the construction of these railroads was about one hundred and twenty-five thousand dollars a mile. The roads are leased to six great companies, who operate them and pay the State ten per cent. upon their gross receipts. The Government aided in their construction by loans of money, and by constructing the earth-works and the bridges. The leases under which the companies hold possession are for a term of ninety-nine years, after which the roads, with their stock and buildings, are to revert to the Government entirely. Menn-

while, however, the mails are transported by the roads free of charge, and the soldiers and officers of the Government are transported at a reduced charge; while the Government fixes the rates for both passengers and freight which the roads charge to the public, and guarantees the roads from any infringement upon their business by the construction of any competing road. The rates are low, but yet high enough to make the enterprise so profitable that the stock of all the French railways commands a premium in the market. From their yearly profits the railroads are also obliged, by the conditions of their lease, to put by yearly a fund for paying back their capital to the shareholders, when, the term of the lease having run out, the roads will become the property of the Government. By this means, the capital of the shareholders being rendered secure, and paying a good dividend, the shares are, of course, steadily at a premium; and the element of stability, so entirely wanting in railway investments in England and this country, is given to this kind of investment. The average working expense of the French railways is about thirty-eight per cent. of their gross receipts.

In Belgium, there are one thousand two hundred and fifty miles of railroad, making an average of two and a half miles to every ten thousand of the population, or one mile to every one hundred square miles of territory. These railroads were constructed at an average cost of \$91,500 a mile. They were partly constructed by the State, and partly by companies, who were given the privilege, on condition that they should absorb their capital by a system called *amortization*, and by which a portion of their earnings should be used, not as dividends, but to repay their capital; and that, when this was done, the roads should be the unencumbered property of the State. At first, the railways in Belgium paid no profit, as the fare was placed very low; but as this system increased the public prosperity by offering a means of cheap circulation, the business so increased that the lines have become very profitable, and their receipts help largely towards the expenses of the Government. In 1865, M. Vaaderschelen, the Minister of Public Works, in his report to the Chamber of Representatives at Brussels, said, "Since 1856, that is to say, in eight years,—

"First, The charges on goods have been lowered on an average of twenty-eight per cent.

"Second, The public have dispatched 2,706,000 tons more, while they have economized more than twenty millions francs (\$4,000,000) on the cost of carriage.

"Third, The public treasury has realized 5,781,000 francs (\$1,156,200) more, after having paid the cost of working, and the interest on capital. Being in this prosperous situation, the government have asked if the time has not come to turn their attention to the second part of the problem of cheap transportation. In other words, whether it is not proper to apply to the service of passengers the principles which have given such satisfactory results to that of goods. The government is of opinion that facility and cheapness of traveling are, in principle, as fruitful of benefits to all classes of society, as the economical transport of goods can be for the producers and consumers."

The Chamber having agreed, the rates of fare were lowered, and the success has been better than was anticipated. The Belgian roads now return a larger profit than ever before, being an average of seven per cent. The relative cheapness of the fares is shown in the follow-

ing comparison. From London to Dover, seventy-eight miles, a first-class ticket cost £1, about five dollars; a second class, fifteen shillings, \$3.75; while from Ostend to Brussels, eighty-nine miles, a first class ticket costs five shillings—\$1.25, and a second-class ticket, three shillings and fourpence—72 cents, the rate of travel on both lines being about the same—a little under forty miles an hour.

Prussia has three thousand eight hundred miles of railroad, making an average of two miles to each ten thousand of the population, or four miles to each one hundred square miles of territory. The average cost of construction was \$83,700 a mile. The comparative cheapness of their construction comes from the fact that care is taken to avoid the preliminary expense of organizing. As we said before the Parliamentary Royal Commission upon railways. "The various expenses of one kind and another accompanying the passing of railway bills in England before a sod was dug, would amount to something very nearly like the cost of the whole Prussian railway system." Of the Prussian railways, about one-half are worked by the government, and the others by private companies, under concessions from the government upon terms similar to those in France. The government is also very careful in not allowing any line to be constructed which shall compete with any other. The fares on all the roads are fixed by the government. The profit upon the capital invested has averaged from five to eight and a half per cent., the higher rate being made by the private companies.

In Austria, there are about three thousand seven hundred miles of railroads, making an average of one mile to each ten thousand of population, or two-thirds of a mile to each one hundred square miles of territory. The average cost of their construction was \$108,500 a mile. The financial condition of the State forced it to leave the construction of these roads to companies, but under the condition that at the end of ninety years the roads become the unencumbered property of the State. The rates of fare are fixed by the government, who have reserved the right to alter them whenever the necessity should arise. The roads have proved profitable to the stockholders, paying an average dividend of seven per cent.

In England an entirely different policy was pursued, and has produced entirely different results. Railways have been built by private companies; and it has been supposed that competition would secure for the public cheapness of transit and stability in railroad investments. The Report of the Royal Commission on Railways gives us the data for judging how far this supposition has proved true. The Stockton and Darlington line was opened in 1825, but the speculative mania for railways did not set in until 1844. That year, projected railways requiring a capital of nearly \$75,000,000 were granted charters by Parliament. The next year, 1845, the amount was \$220,000,000; and the next, 1846, \$607,000,000. The amount asked for in 1846 was \$2,000,000,000, but Parliament was prudent, and limited their favors to \$607,000,000. This conservatism is the more praiseworthy, since it is said that one hundred and fifty-seven members of Parliament were pecuniarily interested in the schemes proposed that year. The parliamentary expenses of the Liverpool and Manchester Railway were \$135,000, about \$5,000 a mile; and it is said that the solicitors' bill for promoting a scheme which never reached Parliament was \$410,000.

There are now 14,247 miles of railway in

England, representing an aggregate capital of \$2,511,314,435, and occupying two hundred and eighty-nine square miles of territory, or one acre in every two hundred and seventy-three of England and Wales, one in every eight hundred and thirteen in Scotland, and one in every eight hundred and fifty-three in Ireland. These lines carry on the average nearly 1,000,000 of passengers every day and in 1866 dispatched 6,000,000 trains for freight and passengers, which traveled more than 163,000,000 miles. It would seem that an amount of business like this should be made profitable; and yet the railway system of England is next door to bankruptcy. In fact, the statistics of 1867, as compared with those of 1866, show that the gross receipts had increased \$6,578,225, while the working expenses had increased \$5,186,395, which was a higher ratio than before, and caused a decrease of their already slim dividends. So involved have the railways become, and their market value is so depressed, causing such widespread disaster, that it has been proposed that the government should purchase all the lines. The London, Chatham and Dover, with a capital of \$50,000,000, has never paid any dividend, nor even the interest on its first issue of bonds, and is now hopelessly insolvent in the hands of a receiver. Yet this is the chief route connecting Paris and London. Nor is this the only one of the English railways that has been placed in the receiver's hands, while the stock of every one of them is heavily depreciated on the market.

Here in the United States the railroads have been built and are owned by private corporations; and the evils of allowing so valuable a monopoly to remain in private hands have more than begun to display themselves. The corporations have seen the folly of competing with each other, and have thus combined; and now there are States of the Union whose political and financial policy is directed and controlled by railway rings. The increased cost of coal, in which every one is interested, is one of these evils. The monopoly of railroads lies like an embargo between the grain fields of the West and the sea-coast. With corn in the East over one dollar a bushel, it is burned in Illinois by the producers. Gov. Palmer of Illinois, in a letter to the convention of farmers at Bloomington, proposes, as a remedy, that the roads should be made free to all carriers of freight and passengers, upon terms to be fixed by the State, and under the laws applicable to turnpikes. This would, however be a mere half-way measure. Every man has neither the time, the inclination, nor the means to be his own railway carrier, so that the business will ultimately fall into few hands; and our experience with the express companies show how naturally they would combine, and keep their charges high.

In an address before the Boston Board of Trade in 1866, Mr. Josiah Quincy urged the purchase by the State of the Boston & Worcester and the Western railroads, and that they should be, *by the people for the people*. Mr. Quincy has gathered statistics from reliable sources, and shows conclusively that the circulation can be carried on by railroads with a cheapness which, even on the continent of Europe, has not yet been dreamed of, and which at present sounds as strange and as ridiculous as a suggestion for carrying a letter from Maine to California for three cents would have sounded in the days of high postage.

He assumes that the railroads were owned by the State, and the tariff of fares was calculated, not to make an income, but simply to pay the cost of administration, of running,

and of keeping the road-beds, the rolling-stock, and the buildings in repair; then that the roads were worked to their capacity. By an English estimate, the cost of running a train, carrying two or three hundred tons, would be for each mile only sixty-three cents. It seems hardly possible, yet here are the items:—

AVERAGE COST OF CARRYING A TRAIN A MILE.	
	Cents.
Maintenance of way and works.....	11
Locomotive power.....	18
Repairs and renewals of carriages.....	5
General traffic charges.....	18
Rates and taxes.....	5
Compensation for injury and loss.....	1
Legal and parliamentary expenses.....	1
Miscellaneous working expenses not included in the above.....	4
Total.....	63

This estimate is made from the data furnished by the English companies to the Board of Trade, as the account of their average expenses for the year 1863, and is the average of all the railroads in the United Kingdom. Suppose the estimate in the United States should be double this, say \$1.25 a mile, which would make ten cents a hundred miles a fair price. The cost of running a train a hundred miles would be \$125. If a train carries 200 tons, and we estimate only ten persons to a ton, this makes 2,000 persons who at ten cents each would make \$200, which is \$75 more than the cost. It has been the policy of railway managers to conceal from the public the secrets of their trade; and it is very hard to get at the facts concerning either the expenses or the profits of railroads. Here, however, we have an estimate given by the railroads themselves in England; and it only needs that the people should become well acquainted with the fact that the railroad can be made to pay its expenses at these rates—ten cents from New York to Philadelphia, fifteen cents from Boston to New York, one dollar and ten cents from Boston to Chicago in order to have it realized.

TITUSVILLE AND TIDIOUTE RAILROAD—The *Tidioute Journal* says: The Tidioute and Titusville Railroad looms up in all its fair proportions. Books are open for subscriptions at the office of James Parshall, and there is a fair prospect that the stock will be speedily taken, and that ere long the sonorous voice of the steam demon will echo and re-echo among the hills of dashing, roaring Gordon Run.

Every railroad that enters our city in every direction will help our trade and enhance our prosperity. A railroad to Tidioute from Titusville would be a short cut for travel and freight to the East. It would bring us nearer to Rochester, Syracuse, Elmira, New York and Boston. The resources of oil and lumber are only partially discovered, to say nothing of development in the region which such a road would traverse. The distance is so short, and the grade so easy and the cost of the undertaking comparatively so small, the facilities and advantages offered and secured so obvious, that the enterprise is likely to enlist the aid of capitalists and business men as well at Titusville as at Tidioute and at Enterprise. *Titusville Herald*.

—The July reduction in the national debt amounted to \$17,034,123 74, making the decrease since March 1st, \$69,100,001 17. The total debt less the amount in the treasury is \$2,369,324,476.

The Atmospheric Brake.

There are very few things connected with railroads and rolling stock which have so exercised the minds of inventors as car brakes. And with good reason; for on the efficiency of these brakes frequently depends the safety of trains and passengers. The requisites of a satisfactory brake are, instantaneous and uniform action, certainty and power. For ordinary purposes it might be thought that instantaneous action would not be necessary, and that the ordinary hand brakes would be quite satisfactory; but it must be borne in mind that not only is the train to be stopped, but to be brought to a halt at a definite point. If, when the engineer whistles for brakes the brakeman are not prompt in putting them on, and just as prompt at one time as at another, he cannot know exactly when to call in order to make the stop at the required point. In case of danger, of course, it is of the utmost importance that the brakes should be put on at the earliest moment possible. A second or even a quarter of a second may make the difference between safety and destruction. But with the hand brake, after the call the brakeman must first go to the brake (unless he happen to be standing by it at the time) and then some time—often very precious time—is expended in winding it up. Meanwhile the train may rush into a ditch or upon a train, or over a man or an animal, destroying lives often and still oftener thousands of dollars worth of property.

Many inventors have endeavored to provide an apparatus which should be operated by the engineer and applied instantaneously, and with such success that several of these improvements have been adopted on well managed roads. But there are difficulties which most have not overcome. Some provided only the means for putting on brakes, but none for taking them off, for which the brakeman were depended upon. Most operated inflexibly, applying just so much power and no less, at all times. A large number have been intended as safety brakes, to be used only in case of accident. Thus the engineer never became familiar with them, and if the apparatus got out of order it was not easily detected.

We described last fall the operation of an atmospheric brake invented by George Westinghouse, of Pittsburg, which was tried in Chicago at that time. In this apparatus, a pump operated by steam from the locomotive provides a supply of condensed air at a certain definite pressure at all times, and this compressed air is conducted to a cylinder under each car, and by its pressure upon a piston working in these cylinders applies the brakes. An ingenious arrangement enables the engineer to apply the brake with the full force of the compressed air, or with a less force, at pleasure; the elasticity of the air prevents any undue friction or holding of the wheel; the application is made very nearly instantaneously on all the trucks; every wheel is pressed with an equal weight; no wheel for an instant is without pressure, and the engineer has perfect control of the apparatus in an instant, by a simple movement of the lever, putting on brakes, lessening the pressure, or taking them off.

The result of that experiment was very satisfactory. A train running at great speed was stopped in about 300 feet—about the train's length—and the results were so satisfactory to the large number of railroad managers present, and the apparatus so promising, that it was ordered immediately for trains on

several roads, and it will very soon be in use on every road entering Chicago, save one.

But an experiment is not an experience. The only satisfactory test is successful use for a lengthened period, in different hands, under various circumstances and in different places. Such a test the Westinghouse brake has now had. It has been used extensively on the Pittsburg, Cincinnati & St. Louis, and the Pennsylvania railroads, and to a less extent on the Michigan Central, the Chicago & Northwestern, the Lake Shore and Michigan Southern, the Illinois Central, and the Union Pacific roads. In every case, we believe, the result has been most satisfactory to the companies. The apparatus has been found not only efficient, but simple, durable, easily managed, not likely to get out of order, always ready, and easily understood and operated by locomotive engineers of ordinary intelligence and skill.

The rapid introduction of this brake is hardly remarkable, though it is exceptional. But this apparatus appeals to managers in two ways: first, it promises a considerable saving in regular expenditures, and the prevention of great losses of property and reputation by accidents, and second, it is itself an attraction which is likely to gain the favor—and therefore the patronage—of travelers. Already on the Pan Handle Line by use of this brake a collision has been averted which, in all probability, would have destroyed several cars, severely damaged a locomotive, and very probably killed an engineer. A passenger train running around a curve at the rate of 25 miles an hour, had approached within 300 feet of the rear of a freight train, when it was discovered and the brake put on. The train was brought to a stop within a few feet of the freight train. In this case a delay of a single second would have made a collision inevitable.

Besides the increase in safety, there is an increase of comfort. The atmospheric brake is entirely noiseless in its application, and to one whose uneasy slumbers in a sleeping car have been rudely broken by the harsh grating of the train as the brakeman puts on brakes, this advantage will seem not inconsiderable. There is, moreover, a saving of time, which, in these days of fast trains is an item not to be despised. So certain and so quick is the operation, that all ordinary stops at stations can be made with less delay in slowing than with the ordinary hand-brake. This advantage effects a saving of twenty minutes in about 250 miles on the Fort Wayne road. Again, as the pressure is applied uniformly and to all the wheels on all the cars of the train, there is necessary a lighter pressure, and consequently less friction and wear than on wheels under a hand-brake; and the sliding of wheels, which wears rails so rapidly, is said to be entirely obviated.—*R. R. Gazette.*

—The impression has generally prevailed that shell roads are not suited to heavy transportation, but there is a shell road from the east gate of the Atlantic and Gulf Railway depot to the Thunderbolt road, a distance of some two or three hundred feet, over which twenty or thirty million feet of lumber has been carted during the last fifteen months, and it is now a better road for heavy loaded vehicles than any in the city.

—The Baldwin Locomotive Works employ seventeen hundred hands, whose aggregate wages amount to \$150,000 per month. The sales of the firm reach somewhere in the neighborhood of \$5,000,000 annually.

Railroad Manners.

There are certain points of good manners in which women fail, which yet seem to have been greatly overlooked by their censurers. Perhaps we ought not to say women, for the class is undoubtedly small; but the one woman who behaves badly attracts more attention than the 99 well disposed; and when even one woman falls below the proper standard, all women seem, somehow, to be humiliated thereby.

In connection with our public schools there is springing up a school of ungracefulness and indelicacy, which, to my thinking, goes far to neutralize the good wrought by the former. Groups of girls travel daily from the country villages, three, five, ten miles over the steam and horse railroads, to normal and high schools of the city, and return at night. What is cause and what is effect I do not know; but these girls sometimes conduct themselves so rudely as to force upon one the conviction that it would be better for women not to know the alphabet, if they must take on so much roughness along with it. Typical American girls, pretty, gentle faced, intelligent looking, well dressed, will fill a car with idle, vulgar, boisterous chatter. Out of rosy, delicate lips, come the voices—of draymen. I was about to say, but that is not true; for the voices of these girls are like nothing in the heavens above or the earth beneath. The only quality of womanliness they possess, is weakness. Without depth, richness, or force, they are thin, harsh, inevitable. They do not so much fill the space as they penetrate it. Three or four such girls will gather face to face, and from beginning to end of their journey pour forth a ceaseless torrent of giddy gabble, utterly regardless of any other presence than their own. They will talk of their teachers and schoolmates by name, of their parties and plans, of their studies, their dresses, their most personal and private matters, with an extravagance, with an incoherency, with an inelegance and coarseness of phraseology, which is disgraceful alike to their schools and to their homes. They will compel without scruple and bear without flinching the eyes of a whole carriage-load of passengers. Indeed, the notice of strangers seems sometimes to be the inspiration of their noisy, unmelodious clatter. They apparently think that this is to be sprightly, arch, high-spirited, and winning, not perceiving that a really high-toned and high-bred girl would as soon jump over a stick in a circus as turn herself into such a spectacle. There is nothing winning about it. The absolute extravagance and nonsense of it will sometimes excite a smile from thoughtlessness, but it is a smile less complimentary than a frown. No amount of acquisition, no mental training, can atone for such demeanor. If the two are incompatible, it is better for a woman not to know the multiplication table than not to be gentle mannered. If a woman is vulgarly *pronounce*, the more she knows the worse. I could sometimes wish that our far-famed schools would stop their algebra, stop their Latin, stop their philosophies, and give their undivided attention to teaching their pupils how to talk. It may not be possible to make them talk sense, but surely they can be made to talk nonsense gracefully. Not all can have musical voices; but upon pain of death I would have girls taught to speak low. Training can do much in the way of melody and sweetness; but a voice that is softly modulated can not be violently disagreeable. And if a girl's tongue

is incorrigible, let her be dispossessed of it altogether.

The pronunciation and rhetoric of these girls are a disgrace to their elders. Words and syllables are clipped, twisted, run together, mingled, mangled and muddled into a dialect fit for savages. Girls who can read Virgil and calculate an eclipse, will employ in conversation a jargon that would stamp them with a stamp of intolerable vulgarity at any well-bred dinner table. What cruelty, what waste is this! It is so easy not to offend, it is hard not to be stupid. It is so unimportant to be learned, it is so indispensable to be well-mannered. Why give time and pains unmeasured to mental acquisition, and then neutralize it all by a ruffianly exterior? Why cast an odium upon education by associating it with uncouthness?

There are disadvantages worse than these, if anything can be worse, in sending girls to school over the railroads. They somehow become common, they cheapen themselves. They lose, if they ever possessed, they destroy before they are old enough to feel the divinity that should hedge a woman. They fall into—I can hardly dignify it with the name of flirtation—but into a sort of bantering communication with unknown men, employees of the railroad and season travelers—a traffic which is fatal to dignity in woman, and inspires no reverence in man. And this passes for liveliness and attractiveness, or at most, perhaps, it is being a little wild. But it is a wildness which girls can not afford. Delicacy is not a thing which can be lost and found. No art can restore to the grape its bloom, and the supreme charm of the grape is its bloom. Familiarity without love, without confidence, without regard, is destructive to all that makes woman exalting and ennobling.

There are other displays of ill-manners which are almost incredible. Girls will sit with their faces towards the passengers, and eat oranges in the most slovenly, but the most unconcerned manner, and then pelt each other with the bits of peel across the aisle. They will scatter the crumbs and paper of their lunch over floor and sofas. I have seen the clean, tidy waiting-room of the railroad strewn with peanut shells—not always, I fear, by woman young enough to be called girls. Such things are simply disgusting. Cleanliness, order, propriety, are not local or incidental qualities. They are inherent, in bred. A lady will no sooner be untidy in one place than in another. She will no more throw nutshells on the bare floor of a station-room than on her own parlor carpet. She will no sooner thrust a pen-knife into the leather lining of the station sofa than she would into the velvet upholstery of her own.

"The world is wide, these things are small; They may be nothing, but they are all."

Nothing? It is the first duty of a woman to be a lady. The woman who says that this is making much ado about nothing, is the woman who will accost you by name when you enter, in a tone that introduces you to every person in it, and make you wish that the part she occupies had run off the track at the last bridge. She is the woman who under the pretext of conversing with one or two friends, informs the whole car company of her views on woman's rights and her relations with her husband. She is the woman who, in a public assembly, when we are momentarily expecting the lecturer or singer to enter, rises in her place, fronts the audience, and stands two minutes waiting for or beckoning to some Sarah Jane to join her. Good-breeding is good

sense. Bad manners in women is immorality. Bashfulness is constitutional. Ignorance of etiquette is the result of circumstances. All can be condoned, and do not banish man or woman from amenities of his kind. But self-possessed, unshrinking and aggressive coarseness of demeanor may be reckoned a State prison offense, several degrees worse than murder, and ought to regulate its proprietor to the society of New York lawyers.—*Harper's Bazaar.*

THE AMERICAN INSTITUTE OF CIVIL ENGINEERING.—The second annual convention of the American Institute of Civil Engineering was held on Wednesday, June 15th, in New York city. The present officers are: Alfred W. Craven, President; A. P. Boller, Secretary; and James O. Morse, Treasurer. Over fifty gentlemen were present—among them, General Barnard, Colonel Adams, of Brooklyn; Horatio Allen, J. D. Steel, of Pennsylvania; W. J. McAlpin and W. E. Worthen. After some ordinary business had been disposed of, the President reviewed the immense strides the Institute had made within the last three years. Established in 1852, it struggled for a few years in spite of drawbacks, till it died a natural death in 1856. In 1867, a dozen of the old members re-organized it on a new basis, and since then its progress has been remarkable—179 members are now on the roll, and comprise nearly every engine of note in the State; its library is so extensive that the bookcases will not hold the works, while the papers read are of great importance, and their publications are sought after by every kindred society here and in Europe. There are fifty-two subscribers to the fellowship. Mr. F. C. Lowthorp made a long address on the "Use of Cast and Wrought Iron in Bridge Construction" and exhibited a diagram of one built by him in 1856, and which was the first of the kind erected in America, and is now standing as solidly as when first built. Mr. J. W. Dutton Steel made some remarks on the "Use of Compressed Air as a Motor," and was of the opinion that compressed air would eventually take an important place as a motor. It has been tried in mines in England with such success that one hundred miles of shaft are already under construction, and he trusted that its use as a motor in underground traffic would soon be considered seriously. Its advantage over steam is under certain conditions incalculable.

Next to the Suez canal in magnitude is the Amsterdam ship canal, which has been in progress about five years, and is expected to be completed in 1876. The canal is being formed through two lakes, both of which are shallow, first, by making embankments on each side of the line of canal, and then by dredging out the material between to the requisite dimensions. A deep excavation is being rapidly formed from the lakes to the North sea, through the sandhills, and outside this pier built of large concrete blocks are in progress, which will extend about a mile into the sea, and enclose within them an area of about 200 acres, which will be dredged to a depth of 24 feet below low water. The canal will also have three locks at the North Sea entrance, a little eastward of the harbor. The canal will have a width at the bottom of 88 feet, which is 16 feet wider than the Suez canal; a width at the top of 195 feet, and a depth of 23 feet. The locks will be large enough to admit ships of the largest class.

Railroad Items.

—Among the arrangements repudiated since the Vanderbilt party acquired a controlling influence in the affairs of the Lake Shore road, is one by which the Erie was to be allowed to run into the Union depot at Cleveland on condition that Gould and Fisk abandoned the project of building a through line to Chicago. Having been notified of the nullification of this agreement by Vanderbilt, Gould and Fisk entered into arrangements for the immediate commencement of a continuation of the Erie and Atlantic and Great Western lines to Chicago. From Cleveland the new Erie extension will wind along the lake shore to Sandusky and Toledo, from which latter point it will strike out for Chicago by an air line, and form a route thirty miles shorter than by any other from New York. It is asserted that the project meets with great favor throughout the West, and that leading capitalists of Cleveland and Chicago, and other prominent men who are interested in sections to be benefited by the opening of a new line, have agreed to subscribe all the capital required, providing the line be commenced immediately.—*News.*

—Russia is the only country in the world which now approaches the United States in the extent of the railroads being built. Unlike the United States, however, it is obliged to import most of its rails. The Cleveland and Tyne district alone, in England, are said to have orders from Russia to the amount of £3,000,000 for railway materials of all kinds. The North-eastern district is producing railroad material at the rate of 1,700,000 tons a year, and increasing its furnaces in construction on the continent of Europe.

—J. L. Booth, of Rochester, N. Y., has invented a new rail, which consists of a compound formed by first rolling the cap and base separately, and then applying them together and passing them together through a rolling or compressing machine, whereby they are firmly united and without being heated for the purpose.

—No wonder the agents and managers of Travelers' Accidental Insurance Companies can afford to sit in their magnificent offices and draw large salaries, when statistics show that in a million railway passengers only about fourteen are injured and *not one killed*.

—Wm. B. Ogden estimates that 450,000 emigrants annually go to the north-west, carrying thither with them not less than \$9,000,000—which they spend within six months—all in the growing elements of prosperity, depending almost entirely upon railways.

—They have a way of raising funds for railway construction down south by means of barbecues. An immense affair of this kind took place at Staunton, Va., last Friday, in behalf of the Shenandoah Valley road. It was enthusiastic and successful.

—A project is on foot in St. Louis to build an immense structure to embrace under one roof a grand union railroad depot, custom house, merchants' exchange, and hotel, covering three entire blocks, and to cost \$3,000,000.

—The Duluth City Council has voted \$50,000 bonds to the Lake Superior and Milwaukee Railway, for money expended by the company on the breakwater and improvements of the lake and bay.

—The Hannibal and Naples bridge over the Illinois at Naples is completed, and trains can now run through from Toledo to the Mississippi opposite Hannibal.

—Six new railway companies will claim the right to the state lands appropriated by the Nebraska Legislature at the last session, each being completed ten miles.

—Money sufficient having been raised by subscription, the survey for the route of the Rockport Railroad will be commenced immediately.

—It is stated that \$1,546,500 has been subscribed to the stock of the Louisville, New Albany and St. Louis Air Line Railway.

—The Illinois Central ships coal oil but one day in the week, and carries it in a car by itself to prevent injury to other goods.

—The Erie now offers first class tickets from Boston to San Francisco for \$139.25.

—Indianapolis has voted \$65,000 to the Indiana and Illinois Central railway.

—Alabama has 916 miles of railway, assessed to the value of \$11,095,701.

EAST ALABAMA AND CINCINNATI RAILROAD.—This is the name of a company whose title has recently been changed under the statute law of Tennessee. Its Original name was the "Eufala, Opelika and Guntersville Railroad Company." The Chattanooga Times says it is designed as a direct route by way of Jacksonville or Oxford, Gadsden and Guntersville to Nashville, and by the Cincinnati and Chattanooga Railroad to Cincinnati. The distance saved between Opelika and Chattanooga by a connection with the Alabama and Chattanooga Railroad will be at least 35 miles over the route by Atlanta.

—The copper mines of Lake Superior region are ceasing operations. The production of copper, it is reported, was over stimulated by the demand during the war, and the result has been the accumulation of a large amount of stock. The product of the Lake Superior mines in 1869 amounted to 23,493,079 pounds of ingot copper, and notwithstanding a reduction of 2,771,000 pounds by the closing of the principal mines, the yield for 1870, it is estimated, will amount to 23,600,000 pounds. This circumstance is accounted for by the fact that other copper mines have increased the production to the extent of 2,000,000 pounds. It is calculated that 2,500,000 pounds remain on hand from last year's operation, and that the Vermont, Tennessee, and Baltimore smelt works will produce 6,000,000 pounds, and that adding the above figures to the yield of the Lake Superior region, will be 31,500,000 pounds of American copper in the market this year.

—The number of passengers arriving in the United States during the year ending June 30, 1869, was 389,651. From sources perfectly reliable, it is safe to estimate the average sum each passenger brought at \$100 in gold. This would give an aggregate of \$38,962,100.

—To make whitewash that will not rub off, mix up half a pailful of lime and water; take half a pint of flower and make a starch of it, and pour it into the whitewash while hot. Stir it well and apply as usual.

—A blast furnace is soon to be erected near Zanesville, Ohio, which, when completed, will give employment to one hundred and fifty men.

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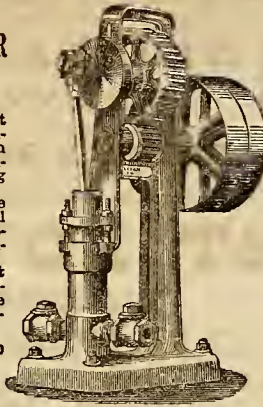
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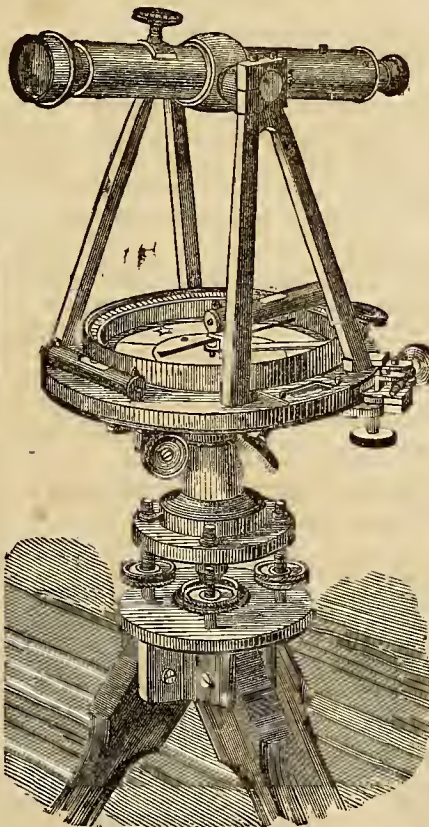
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Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.
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And Principal Points in
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CINCINNATI to NEW YORK, - 860 Miles.
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7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst.); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

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The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the lower portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices to the South and South-west.

W. B. SHATTUCK, Gen'l Pass'r Ag't.
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Best Route to St. Louis and Chicago

INDIANAPOLIS,
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—AND—
LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

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Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

Indianapolis and Lafayette Mail... 7.20 am 12.40 am
St. Louis and Springfield Express... 2.40 pm 7.35 am
St. Louis and Springfield Express... 10.20 pm 3.42 pm
Lawrenceburg Accommodation... 10.10 am 2.35 pm
Lawrenceburg Accommodation... 4.30 pm 8.25 am

*The 10.10 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail... 7.00 am 10.15 am
Chicago Express... 6.50 pm 9.30 pm
Harrison Accommodation... 5.30 pm 7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7.00 A. M.	6.30 P. M.
do do do	9.45 P. M.	7.00 A. M.
Toledo, Detroit & Canada.	7.15 A. M.	10.25 P. M.
do do do	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago.	7.15 A. M.	10.25 P. M.
do do do	2.30 P. M.	5.40 P. M.
do do do	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo.	7.15 A. M.	5.40 P. M.
Sandusky, Cleveland & Buffalo.	2.30 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo.	6.30 P. M.	10.25 A. M.
Muncie & Indianapolis.	7.15 A. M.	10.25 P. M.
do do do	5.00 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond.	7.15 A. M.	10.25 P. M.
do do do	5.40 P. M.	10.20 A. M.
Hamilton Accommodation.	9.30 A. M.	8.45 A. M.
do do do		6.50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McCLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

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Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

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**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO
Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Louisville Mail.	7.30 A. M.	9.05 A. M.
Louisville Fast Line.	1.20 P. M.	11.15 A. M.
Louisville Express.	5.00 P. M.	8.45 P. M.
Louisville Night Express.	11.15 P. M.	5.00 A. M.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Supt. Louisville.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at East on with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

CENTRAL R. R. OF NEW-JERSEY.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays, for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Old Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays, for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9., 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:40, 6:55, 7:10, 7:2, 7:40, 8:0, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 326 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, AUGUST 18, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

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WRIGHTSON & CO., Prop'rs.

Influence of the War on American Securities and Produce Markets.

We have seen some curious speculations on the influence of the European war on the business of the United States. It seems to us that many of them are erroneous. A foreign war of any sort can have very little influence upon us, for reasons which the thoughtful reader will readily see. Let us endeavor to separate the leading facts from mere speculation.

1. We are the largest single nation in Europe or America, except Russia. We have more than forty millions of people, and an immense territory. The first effect of this is to make us self-dependent, and to make the domestic markets the great markets for the sale of produce. Take New England, for example, with its great manufactures and three millions of people, who produce very little of bread-stuffs. The States of the central West sell in New England what is equivalent to three millions of barrels of flour, and this constantly and permanently. We have no market abroad so reliable as that. Again, New York and New Jersey take two millions of barrels of flour also. The South also takes large quantities. Our domestic markets are permanent and far the most valuable. We do send great quantities of provisions to Europe; but the market is a feeble one compared with our own. The market in Europe will not be increased by the war, except by some *wastage*, which can not be great. The only question is, whether Europe is deficient in grain? But at

present this does not seem to be the case. A month since it was thought that France was greatly deficient, but recently we hear that France has an average crop. If this be so, she will need little bread from abroad. At any rate, the war will make little difference in regard to that, except that what would have come from the North of Europe will come from the United States.

2. In regard to our securities, almost the same remarks may be made. Undoubtedly a large amount of American securities went to Europe, but the great market is at home. We are confident there is a great mistake on this head. The great bulk of American securities are held at home. It is only within the last twenty years that active or *moneyed capital* had increased in the United States, so far as to be invested largely in bonds and securities. For a long time, surplus capital was invested in banks and railroads; but before the war it began to seek railroads largely. During the war paper money was trebled, and this gave activity at once to the market for securities, and it has kept active ever since. In the war, four-fifths, if not nine-tenths of all our government bonds were taken at home. Since the war they have been more in demand in England and Germany. No doubt, in the last four years, a large quantity of bonds have been sent to Europe, but still, two-thirds of them are held at home, and by all classes of people. The home market is but little affected by that of Europe. If we look into the quotations, we find that the present price of bonds is only three or four per cent. less than the highest price before the European war. Why should the price be less? It is said the bonds will be sent home; what if they are? They can only be sold in this country at prices which will be remunerative to the buyers. If we take back our own bonds, we take them back on our own terms. The 6 per cent. government bonds are now the best security in the world, and all moneyed men and close calculators understand this very well. It is now settled by the action of the government and the people that the whole debt of the nation will be paid off in gold. Taking 5 per cent. in this country as the gold value of money (and it is no more), and the value of a 6 per cent. gold bond is 120; and taking 4 per cent. for Europe, the bond should be 150. Now we see that the 6 per cent. bond did sell in New York at 118, before the French war, and yet *now*, it sells at 114. We happen to recollect also, that the 5 per cents of the war of 1812-15 rose to 120. Whenever affairs are settled on a permanent, peaceful basis, our 6 per cents will be worth in market 125. They are and will continue the very best investment for those who want *safe, permanent and salable* investments, and this is precisely what persons wanting permanent investments desire. But, on what ground is it assumed that American securities will be sent back? We

think that is a mistake? On the contrary, it is more probable that Europe (provided the war continues) will take more bonds. In a great war there is a sense of insecurity, and a desire to lay up something which will be secure, and beyond the reach of possible danger. Where can that be found, if not in this country? Germany and France will both look to this country for safe investments. England may be involved in the war, and English capital may also seek investment here. On the other hand, the great want of money in the war may cause France and Prussia to want loans at so high a rate as to attract surplus capital, but it is not likely they will offer rates higher than those of the United States. On the whole, we think there will be no great change in the market for securities on account of the European war. Our country is the great market for surplus capital.

Summing up the whole, we think the speculations as to the influence of the European war on our markets are erroneous and exaggerated. Our country is immense in extent, population and resources. The markets of such a country can not be easily disturbed, and will not be moved much out of their course by any European wars, unless they involve all Europe, and thus cut off much of its trade and crops.

Virginia Notes.

EDITORIAL CORRESPONDENCE.

RICHMOND, VA., July, 1870.

RAILROAD RECORD:—During my sojourn here, I have been about this city a great deal. Every tour that I made over it I found friends who were ready to accompany me, and who took great pleasure in pointing out all objects and localities of interest, so that I now feel that I know Richmond about as well as I do Cincinnati.

So much was written and said about this place a few years since, that it is unnecessary for me to give the history, locality, peculiarities and surroundings of Richmond to the readers of the RECORD. All these things they are familiar with. But the changes that have occurred here since the Evacuation, when the larger part of the business section of the city was burned—the hopes and purposes of its people—and the future that we may speculate awaits this beautiful place, are new fields for the journalist to travel over, and doubtless afford as interesting matter as those of the past.

There are still many war marks to be seen, yet considering the destruction that occurred, much less than one would suppose. The few years that have elapsed since the close of that event have been well occupied in rebuilding, and the work has been done well. I am told that the new structures are in every way superior to those that were destroyed. At any

rate, they are such as would be creditable to any city in the country, and give this one a modern and thrifty and business-like appearance. Upon the main street, they are lofty, with imposing fronts of iron, or ornamentally wrought brick or stone. The business rooms are deep and well finished, and I am pleased to add, are all occupied, and seem to be the scenes of active trade.

Back of this street, and toward and along the river, stand the ruins of mills, tobacco and cotton warehouses, and the few dwellings that stood upon this section of the city. It is a melancholy sight. A few years more, however, and this too will be changed. Every season some part of this mass of debris is removed, and some spot built over, and as the business of the city increases a demand will arise for new warerooms and places of trade, that will redeem this, the last of the ruins of the great conflagration that lighted the Confederate government out of, and the Federal soldiers into the beleaguered city, that had so long and so gallantly resisted the terrible force that was brought against it.

It is astonishing how rapidly this change from the old to the new has taken place. It was like building a new city. The amount of energy required was enormous, and the capital very large. One is at a loss to know where it all came from, or what should have prompted its expenditure in such a place, and at a time when the whole country tributary to it was undergoing such revulsions in its moral, social and pecuniary affairs as indicated its utter ruin.

It is all understood, however, we think, when the geographical and commercial position of the city is considered.

The war could not destroy the majestic river that leads to the sea, and that is capable of floating freighted vessels from any port in the world. Nor could it annihilate the industrial resources, the iron, coal, granite, and marble that abound in the country back of and tributary to this city. Nor arrest the fertility of the soil. Nor interfere with the geniality of the climate. Nor impair the magnificent water power that dashes past the hills of Richmond.

These are the powers that built the city, that gave it importance, that have rescued it from the devastation of war, and that *will* make it one of the important business centers of the country.

The people of this part of Virginia understand all this, and are giving their attention to the means of developing these opulent resources. They invite northern capital and skill here by the most tempting offers. They make handsome contributions themselves out of their limited means, and are making a basis for a most extensive and permanent material prosperity.

Since the inaugurating of this new order of affairs, the Railroad system of the State has

undergone such changes as will vitalize old suspended projects, consolidate fragmentary interests, and place them under the vigor of one management, and give the direction of lines hitherto controlled by the State, to parties experienced in such affairs, and who will give them the strength of all the capital necessary to place them among the first class roads of the nation.

Richmond must be largely benefited by these modifications. She will receive great advantages from the strengthened and extended R. P. & D. road, and the construction of the Peninsula Railway; and above all, by the completion of the Chesapeake & Ohio road. When these are finished, and their local interests developed, they will pour into this city a mass of trade from all parts of the Southern and Western interior that will stimulate her business facilities to their highest capacity, and call into requisition a large part of that stupendous water power that is now unproductive.

There is nothing that can impede her prosperity. She will advance in wealth and power just in proportion to the development of the vast and variable resources of which she is the center. If this development is rapid, so will be the growth of Richmond, but in any event she must move ahead until her present population is more than trebled, her wealth enormous, and her departed power and glory be as nothing to that she will obtain in her commercial supremacy of Virginia.

Among those who, I think, have not duly considered the question, there is an opinion that the success of Norfolk, or Newport News, or any other point upon Hampton Roads, will be detrimental to the interest of Richmond. I certainly can not see it in that light. Though one or more of those places should attain a size of importance, or rise to the magnitude of commercial cities, as I have predicted in my former letters, they can never be more in their business interests than places of transshipment. They may possess capacious harbors, and their shores may be lined with warehouses and their wharves crowded with shipping, and railways may find their sea front terminus there, and a dense population may be necessary to exchange the products that may gather there and sustain the diversified traffic incident to such a people, but not one of these places can ever become a manufacturing point for reasons that are obvious, they have no facilities for such industry, and to import them would add so largely to the cost of the articles produced as to render them unmarketable. No, if such a thing should occur, that Norfolk and Newport News should each become the seat of an active commerce, and possess a large population, Richmond must manufacture for them both, and not only for the consumption of the people but for their market and traffic with foreign interests. Suppose there were fifty

thousand people at each of these points, how many more would be necessary at Richmond than otherwise, to supply the wants of these consuming masses with all that she can supply cheaper and quicker than any other place? Would there not be a reciprocity of interest between such places and Richmond, and each be more prosperous with the existence and prosperity of the other? A general success is better than a local one, and that great principle that underlies all the relations of men and in spite of everything enforces itself, would soon regulate the affairs of these localities, and define the interests of each. Besides, Richmond, as I have shown, possesses great commercial facilities, as well as manufacturing. The James river, one hundred and sixty miles from the mouth to the rapids, will enable at any season vessels of sixteen feet draft to reach her wharves. This will command an extensive shipping trade from the coast ports from these very commercial points on the sea front, and indeed from the transatlantic ports. To a large extent it would confine the foreign traffic done in ships of a larger class and drawing a greater depth of water than the river supplies, to these new towns upon Hampton Roads. Such vessels as are now loaded light at Richmond and floated down to City Point, to await the slow and costly process of completing their cargoes from lighters. This is not the natural trade of Richmond, and can be done cheaper, and quicker, and safer, lower down at some of the points suggested.

I am aware that a plan is on foot for deepening the river, removing bars and other obstructions, and that Congress made a small appropriation at the last session for this purpose, and that the city proposes to double this sum. This is but repeating the experiment of thirty years, and may prove like many other such endeavors, "a work never completed, and always to be done over." There are grave doubts as to the policy of this expenditure, but as the movement I find is popular, and the money is at hand, the experiment will undoubtedly be made, and time alone decide the wisdom of the measure.

I did not intend to devote this whole letter to Richmond, but having gone thus far, I may as well devote the remainder to it.

The population of this city is placed at sixty thousand. I should not be astonished if the census cut it down somewhat, as it has nearly all other cities of the country. Yet Richmond is a large place, compactly built, regularly laid out, and stands upon seven hills. It is a beautiful place. Some of the old residences are fine, a few of them grand. The yards and lawns are clean, tastefully arranged, and ornamented with a most luxuriant growth of shrubbery. The magnolia flourishes here in great beauty. It can boast of a very handsome park, in the center of which stands the capitol, a relic of by-gone days, and the scene of the fearful catastrophe by which about

sixty people lost their lives a few months since. This old edifice has outlived its usefulness, and ought to be replaced by another in style, size and appointments suitable to the age and the grand old State of Virginia. This park is quite a place of resort. It is ornamented by a couple of fountains that play prettily, a statue of Henry Clay, and the most magnificent allegorical monument in the world.

I shall not attempt a description of this work, as it would be like writing both a history of the art of sculpture as well as a history of the Revolution of 1776, that it is intended to typify.

The people are true to their well established reputation for hospitality and kindness. They complain that they can not entertain you as they once could, and seem to regret it more on your account than their own; but their welcome is ardent and cheerful. I must confess that I like them very much.

I wish our northern people knew these Virginians better than they do. Both parties would be better for an acquaintance. It would be well for our citizens to visit this place. Get up an excursion, and come and see. It would pay handsomely in more ways than the pecuniary one.

Another thing to the credit of Richmond. It is famous for its good hotels. This is the verdict of every one with whom I talked upon the subject. To this testimony I must add my own, as I have never been more cordially entertained, nor fared better, than I have at the Spottswood House, nor ever met a more companionable set of gentlemen than those who are its proprietors and officers. I therefore recommend it to the traveling public.

CELINA.

Consolidation of Trunk Lines.

[From the Philadelphia American and Gazette.]

The Erie and New York Central Railroads have at length arranged to bury the hatchet, stop their ruinous war of excessively low freights, and to consolidate. Jay Gould, President of the Erie, so telegraphs to the Vice President of the Pennsylvania Railroad. This consolidation is an event of such magnitude as to demand more than a passing notice. The Erie controls a broad gauge line reaching all the way from New York to St. Louis, and its business is immense. The New York Central includes, it is said, five thousand miles of railroad east and west. This consolidation makes the united corporation so formidable that it is a question whether defensive measures will not have to be adopted against it by the various States through which its lines pass. The gauge of the New York Central, and all the lines in its interest, is four feet eight and a half inches, while that of the Erie and its connections is six feet. The two will, therefore, have still to be worked distinctly, notwithstanding the consolidation. Neither engine nor cars can be used in common. The only object of the consolidation is monopoly. Competition was the thing to be stopped, and it could only be done by both lines being put under one ownership. Hence

Vanderbilt has been grasping at the Erie by every means in his power, and Gould and Fisk, after thwarting him at every turn, and enriching themselves beyond their most sanguine expectations, have now made peace, and agreed to consolidate, by which process they will become still richer, and get rid of all their law suits and other troubles.

Notwithstanding all the charges so freely made against Gould and Fisk, the Erie Railroad, under their management, is, beyond all question, in far better condition than it ever was before, and their competition with the New York Central has been managed with exceeding ability and success. Their attempt to compete with the Pennsylvania Central was a failure. Latterly the two have been working in harmony against Vanderbilt's roads. But with this consolidation there comes up a new and formidable complication, the end of which it is not easy to foresee. Our own road is strong, financially and otherwise. Its command of resources is unlimited, and in its field it will not be easy to shake it.

But, as a competitor for the trade of New York city, our road will now have to encounter an opposition such as it never had before. We must candidly say that this bodes no good to the trade of Philadelphia; for if the two New York lines, in the fury of competition, should reduce their freights to a ruinously low figure, our line would be compelled either to follow suit or abandon the New York trade. If our company were to enter into this competition the result would be that it would carry freights between New York and the West cheaper than between Philadelphia and the West. If our company were to withdraw entirely from the New York trade, the consolidated lines would at once raise their freights to monopoly terms, and New York would suffer. So far, therefore, as the interests of Philadelphia are concerned, it would be most desirable that the Pennsylvania Central should follow the example of the Baltimore & Ohio, and concentrate its whole attention on its terminal city. The result of this, however, would be a great loss of trade to the Camden & Amboy and New Jersey Central lines.

Formidable as this consolidation seems, it is yet a fact that the interests concerned in the combination of which the Pennsylvania Railroad is the center, are supreme in New Jersey, Pennsylvania, Ohio, Indiana, and some other States. Our connections are also making rapid progress in Minnesota, Illinois, Kentucky, Maryland and Virginia, and it is probable this immense expansion that excites the New York companies to consolidate their interest to make headway against it. We had our hands full in contending against the new schemes of the Baltimore & Ohio Railroad Company, and now this new complication comes in to increase the trouble. The effect will be the same now as heretofore. It will produce new absorptions of connections and extensions by the Pennsylvania Central, and writers for the press will hold up their hands in astonishment at the increase of a power that goes ahead thus only in self defense.

No doubt the probability of the Northern Pacific Railroad, being built in the interest of this line, has had the effect of stimulating this consolidation in New York. But the value of that connection is purely prospective, while the southern extension to which the company has turned its attention will be of immediate value. We have also an interest in the through line from St. Louis to Denver, via the Missouri Pacific and Kansas Pacific.

If a war of freight tariffs is to go on between the New York lines and our own experience has shown that our line is able to stand it as long as any, and perhaps better. It is to be regretted, however, that the way business has to pay heavily for these contests, as all the expenses of the line in such cases are raised on it.

Chapter of Railroad History.

GENERAL FREMONT'S SOUTHERN PACIFIC RAILROAD—HOW A RAILROAD THREE MILES LONG EARNED HALF A MILLION.

[From the Newark Daily Advertiser.]

We see by the Texas papers that the Legislature of that State has granted to the Memphis, El Paso & Pacific Railroad Company a right of way across the public lands of the State. This is the company which has in view the construction of a road across the northern tier of counties of Texas to connect with other roads in Arkansas on one side and Arizona on the other, so as to form a through line to be called the Southern Pacific Railroad. It has been under the control of Gen. Fremont and his associates, and is the same company which has recently been seeking aid from Congress. It has had some singular fortunes and misfortunes.

The original charter of the company was granted by the State of Texas in 1858, with a right to construct a railroad through the northern tier of counties of that State. A supplement was passed in 1861, granting some further privileges. By the charter and supplement, together, the company are guaranteed a large amount of State lands on the completion of every ten mile section of the road—we believe it is equivalent to a tract of twenty miles in width on each side of the road. The original corporators and directors never effected anything; indeed, the war prevented anything being done. But in 1866, Gen. Fremont and his associates took the whole enterprise upon contract, on consideration of having control of the entire stock and advantages of the charter, stipulating that the Directors should co-operate by passing the necessary resolutions and executing the necessary bonds to operate with. Under this arrangement a large quantity of road bed construction bonds were issued to the amount, we believe, of \$16,000 per mile, and ten million dollars of land grant bonds. Five millions of the latter were secured upon the State lands, which would be due on the completion of the first 150 miles of the road; and the other five millions, upon the next 150 miles. The bonds were placed in the hands of the contractors, Fremont and his associates. They had been made members of the board, and Fremont and two others were appointed the Executive Committee, with full power to act in place of the board.

The wonderful thing is that, without any property except in the moon, without having scarcely put a spade in the ground, this committee succeeded not only in getting their bonds admitted to the Paris Bourse, but actually disposed of \$5,000,000 of the land grant bonds at sixty cents on the dollar in specie—equivalent to about eighty-four cents in currency—thus actually realizing about \$4,200,000 in cash.

The means resorted to for raising this money and the disposition made of it after it was raised, have been made the subject of a serious litigation, involving the possession of the charter and what remnants remain of the cor-

porate property. In February last, a suit was commenced against General Fremont, James M. Daniel (the Chief Engineer) and others in New York city on allegations of fraudulent conduct, and an order for their arrest was made.

But they turned up in Washington and were not arrested. They had an office in New York, however, and left many securities and considerable property behind them. John A. C. Gray was appointed receiver and took possession of the assets.

Recently application has been made to Justice Bradley, as Judge of the United States Circuit Court for the Western District of Texas, for an injunction against the company in its corporate capacity, and the appointment of a general receiver of all the property and assets in Texas and elsewhere. This application was made by C. Parker, Esq., of Newark, on behalf of the Trustees of the land grant mortgages (who are P. S. Forbes, of Paris; S. M. Swenson, of New York, and Andrew G. Curtin, of Pennsylvania,) and of Emanuel Lissignol, a Paris broker who holds some of the bonds, and of Fred. A. Lyon, of Illinois, who holds some stock. These plaintiffs file a bill in equity and charge that it was a breach of trust in the directors to place the whole control and disposal of the corporation and its chartered privileges in the hands of three men, that the means resorted to by these men to palm off the bonds in Paris were a downright fraud; and that the money raised thereby has been squandered and embezzled by the parties and their agents, so that the railroad corporation and corporate property will derive scarcely any benefit from it.

The fraudulent means particularly specified were the publication of a pamphlet in Paris, in the French language, in the summer of 1869, in which it was represented that a large portion of the road was built; that the right to State lands had become vested to the amount of eight millions of acres, worth \$14 per acre; that connections had been secured to the Pacific in one direction, and to Richmond, Va., in the other; that the Congress of the United States had passed an act in March, 1869, guaranteeing the payment of six per cent. interest on the company's construction bonds to an amount of \$50,000 on each side of the road, and the payment of the principal at maturity; the proceeds of which were to be expended in building the road, and that the bonds were good, though all the lands should revert to the State! The bill charges that all these representations were simply false.

As to the disposition of the proceeds of the bonds, they allege that Fremont received 16 per cent., or about half a million of dollars for commissions; that when interest became due on the bonds, they paid it out of the sale of more bonds, so as to keep up a fictitious credit; that large sums were paid to persons of influence and position to get the bonds on the Bourse; that Fremont's brother-in-law, Gaudrie Boileau, Consul General of France, in New York, received 248 bonds of \$1,000 each, and returned them and was paid for them out of the proceeds of bonds sold in Paris; that although about 6,000 tons of iron rails were purchased they never were used, except to lay about three miles of road in Texas, the only portion of the road ever built; and that the rest lie in the Custom House at New Orleans for nonpayment of freight and duties. They allege that in December, 1869, the parties laid out \$250,000 for stock in the Memphis & Little Rock Railroad Company; \$100,000 to purchase stock in the San Diego & Gila Railroad Company, and Arizona Railroad

Company; and they had laid out \$450,000 to pay interest on bonds; \$480,000 for iron rails and machinery in Europe; that \$300,000 was still in their hands; and that the balance of \$2,400,000 went for commissions and to pay pretended claims of the parties, their agents, &c. The result and conclusion of the whole matter, as stated in the bill, were that the money was nearly all spent, and nothing had been done to secure the lands which constituted the only basis and security of the land grant bonds. And, in addition to these bonds, the parties had also issued land certificates of \$1,000 each, to an unknown amount, and distributed them to their friends in Congress and elsewhere.

The bill does not stop here, but alleges that in November, 1867, a sub contract was made with one William Schmoele, of Philadelphia, for constructing the road. By this contract, the whole \$40,000,000 of the capital stock was subscribed, viz: \$30,000,000 by Schmoele, and \$10,000,000 by Epperson the President of the Company and associate of Fremont. The latter was to be considered full paid stock, and to be received for services, salaries, etc. as fast, in proportion, as the road should be finished. Also, ten millions of the thirty millions subscribed by Schmoele, was to be considered full paid stock in his hands in the same manner. The other \$20,000,000, to be sold—at not less than 75 cents to the dollar; and the building of the road to be paid for out of the proceeds of such sales, and out of the sale of State lands, and any other subsidies received from Government or from Texas. Ten per cent. of the gross proceeds of all sales of stock, &c., to be allowed Schmoele for commissions; and expenses and commissions not to exceed 25 per cent. In June, 1868, a contract was made between Schmoele and Fremont, by which the latter was to be equally interested with the former throughout.

The allegations of the bill being strongly supported by affidavits, and notice being acknowledged by the attorney of the company as well as by Gen. Fremont, Judge Bradley granted the injunction and appointed a receiver as requested. He appointed John A. C. Gray as the receiver, and required him to give bonds in the sum of \$50,000.

The above facts have been gleaned in good measure from an inspection of the proceedings, which were ordered to be filed in the United States Clerk's office at Tyler, in Texas, where they now are.

Meantime, we understand that Mr. Parker the counsel, and Mr. Gray the receiver, have gone to Paris, probably with a view to a conference with the bondholders. Under this state of affairs it may be a problem worthy, though difficult, of solution, in whose interest the recent legislation in Texas is being made, whether in the interest of the original company, which is now represented, it seems, by Schmoele, Fremont and Epperson, or in that of the Paris bondholders, who so freely took the bait, and advanced three millions of dollars in specie on the representations made in a paper prospectus.

England has five hundred blast furnaces, which every year reduce 12,000,000 tons of ore to 4,800,000 tons of metal, and consume 15,000,000 tons of coal, and require about the same amount to reduce to bars, the manufactured metal being worth about £11,500,000 or \$50,000,000. The works of France produce about the same amount. The establishment of Schuieder & Co. alone covers eleven acres.

Railway Accidents.

In the State of Pennsylvania there is a law defining the liabilities of railway companies and authorizing them to issue policies of insurance for the benefit of their passengers. The law reads thus:

"When any person shall sustain personal injury or loss of life while lawfully engaged or employed on or about the road, works, depots and premises of a railway company, or on or about any train or car therein or thereon, of which company such person is not an employee, the right of action and recovery in all such cases against the company shall be such only as would exist if such person were an employee. *Provided*, That this section shall not apply to passengers.

"In all actions now or hereafter instituted against common carriers or companies owning, operating or using a railway as a public highway, wherein steam or other motive power is used, to recover for loss and damage sustained and arising either from personal injuries or loss of life, and for which, by law, such carrier or corporation could be held responsible, only such compensation for loss and damage shall be recovered as the evidence shall clearly prove to have been peculiarly suffered or sustained, not exceeding, in case of personal injury, the sum of \$3,000, nor in case of loss of life the sum of \$5,000.

"It shall be lawful for such carrier or corporation to insure the lives and persons of passengers against loss or injury from accidental causes, and however happening, while in their charge, and for that purpose to issue and sell to such passengers applying for the same, tickets or policies of insurance, specifying the name of the insured, the premium charged, the particular trip or time covered by the policy, and the amount insured, not exceeding (except at the option of the said carrier or corporation) the sum of \$25 for each week of disability, for a period not longer than twenty-six weeks, in case of personal injury; not more than \$10,000 in case of death, and all premiums so received shall be kept separate and apart from the other receipts of said carrier or corporation, and shall not be liable for any other claim, debts, or demands against such carrier or corporation than those arising out of said policies, and the amount of said premium; and the securities in which the same are invested for the benefit and protection of such policy holders shall be reported to the Auditor General annually as a part of the operations of such carrier or corporation as is now provided for by the act entitled "An act to require railway companies to make uniform reports to the Auditor General," approved April 4, 1859. *Provided*, nevertheless, that it shall be lawful for any such carrier or corporation, in lieu of issuing tickets as aforesaid, to keep on sale at their ticket office, the policies of insurance or indemnity against personal injury or death resulting from accidental causes, issued by insurance companies incorporated for any such purposes, as shall have an actual bona fide cash capital invested in securities approved by the Governor, State Treasurer and Auditor General of this Commonwealth of at least \$200,000. *Provided*, That a recovery upon any policy issued or sold under the provisions of this act shall be no bar to a recovery under the provisions of the second section of this act.

"All acts or parts of acts inconsistent herewith, and the same hereby are repealed, and any provisions in the acts incorporating such common carriers or corporations incor-

sistent herewith, shall be repealed upon the acceptance of the provisions of this act by such carriers or corporations, and upon the acceptance of the provisions herein by any carrier or corporation, the same shall become a part of the act of incorporation."

Pittsburg & Connellsville Railroad.

We are much pleased to notice that Mr. Hughart, President of the Connellsville Railroad, has established two additional passenger trains, one of which is especially designed for fast speed, making the entire distance to Uniontown in three hours. The other is a local accommodation train, which will run as far as Alpsville, twenty-one miles from the city. The passenger business of the road, under the wise policy established by Mr. Hughart, of cheap fares, has been largely developed during the last year, and it may be safely said, that the local business of the Connellsville now exceeds that of the old established Baltimore & Ohio road from its Eastern terminus.

The rate of fare on the Connellsville for school tickets, for instance, is only one cent per mile, to Hazelwood—in fact, less than the rate charged by the horse railways. The same class of travel to McKeesport, fifteen miles, pays only ten cents a trip; the monthly commutation rate to the same point is only thirteen cents a trip. With this wise policy, the local travel is now about one thousand persons, each way, per day, one-tenth of which are children attending schools in the city. With the facilities offered a large number of business men have already sought the beautiful eastern bank of the Monongahela for residences, as far out as the thriving borough of McKeesport. There are nine passenger trains, each way, per day, and twelve coal, coke and freight trains. So careful has been the management of the President, and the Superintendent, Mr. W. B. Stout, that no passenger has lost his life by accident in the past twelve or fourteen years, or since the road has been in operation.

The coal and coke business is increasing marvelously, and will find a still larger development when the eastern portion of the road from Connellsville shall be finished. The daily business of coal is now over fifteen hundred tons, and about a thousand tons of coke. The latter is shipped all over the country, as far east as Boston, and west to Missouri and Iowa. Over three thousand men are now at work finishing the railway between Connellsville and Cumberland. It is expected that the same will be opened for travel in January next.

Great activity is now displayed in the region of country to be developed by the Pittsburg & Connellsville Railroad. A surprising number of branch lines are not only projected but surveyed and contracted for, and some of them will be finished almost as soon as the main line is opened for travel. Branches to Somerset, Salisbury, Bedford, the Uniontown extension, and Mount Pleasant branch, are the most notable. The Somerset branch, from Mineral Point, distance about ten miles, was surveyed last spring, the cost will be about \$140,000, and the contracts for building the same are already made. The Mount Pleasant branch leaves the line of the road a short distance west of Connellsville at Broadford, and in light grades and easy curves it passes for ten miles through one of the richest and most beautiful regions in Pennsylvania. Coal of the best quality, iron ore and limestone abound everywhere. Talk about the west,

there are better opportunities for profitable investment of money on the line of the railroad between Connellsville, Confluence and above, than ever were offered by Duluth, if the positive certainties of this region of our State are taken into consideration. The town of Confluence, thirty miles above Connellsville, has taken a fine start this spring, and the railroad company have appropriated \$50,000 for the erection of workshops at this place. An eight foot vein of gas coal has been opened between Indian Creek and the Falls.—*Pittsburg Evening Chronicle*.

The London Underground Railway.

There is something very attractive—one might say poetic—in the resulting operations and effects of science; even to those to whom science itself is a name for weariness and unmitigated dryness. And, as illustrating these operations and effects, statistics themselves become glowing, and give food to the imagination as to the reason. Railways and railway-building are dryish topics, proper it would seem, only to engineers and contractors on the one hand, and to legislators, directors and shareholders on the other; but something of romance may be picked out of them, sufficient to amuse the unscientific world. "Mugby Junction" was followed by a perfect shower of pithy stories about railways and railway traveling.

But the London Underground Railway is one of exceptional interest. It is one of the marvels of the age—a vivid illustration not only of human and scientific capabilities, but especially of that English dogged persistency, sturdy perseverance, ignorance of defeat, energy in reaching an end after starting for it, which beat the French at Poitiers and Agincourt, established the empire on which the sun does not set, and gave us steam engines. Engineers, with their armies or navies, have been for these past seven years burrowing underneath this vast city, in this direction and that, in circles, diagonals and right angles, under houses, and churches, and alleys, and parks, through London clay, and Roman ruins, and Saxon bricks, from the Squalor of the far east to the gorgeous Mammondom of the far west, and from the banks of the Thames to Highgate retreats and the cozy nests of St. John's Wood; emerging here and there for a moment into the full light of day, then plunging again into blank wet darkness; tunnelling, bracing, walling up, arching over, underpinning house blocks, building buttresses, ranging "streets" and roofing with "cast-iron girders," erecting "transverse jack arches" and fitting "crossed purlins;" laying there rails and building stations, running up ventilation shafts, and finally setting the railway trains agoing therein to the number of some twelve hundred a day, one arriving every three minutes at each station, and about one hundred thousand passengers being conveyed hither and thither every day.

The London Underground Railway differs from all other English Railways in this—that when it is finished it will have neither beginning nor end. "Other lines" says a London Journal, "are alternations of cuttings and runs in the open, more or less elevated above the natural level of the surface, occasionally varied by a tunnel; this is a continuous burrow, a succession of covered ways, with troughs of various lengths at irregular intervals, open to the sky for light, but more especially for ventilation." On other railways you measure space by miles; but you count it by chains and furlongs. Other lines run a dozen, per-

haps twenty trains daily; the number of trains passing over the Underground every day is twelve hundred; the interval in running is otherwise counted by hours, and here by minutes. The most thriving of other lines do not count up more than one hundred pounds sterling a mile in their receipts; the Underground yields over one thousand pounds sterling a mile. In seven years 150,000,000 people—the population of the United Kingdom six times over—have passed over this line; and on Whitsunday, 1869—the day when the greatest number went over it—the number of passengers traveling to and from the different stations was 189,499; the number for that week being 907,657! These facts at once prove the inestimable value and importance to Londoners of this Underground Railway, and show what a blessing it is to the vast population which must get quickly to its work, and to which the breath of country air, now within reach of the poorest, is life and health.

It is reported that during 1869 there were exported from Laguna de Terminos, a seaport town of Yucatan, 61,588,200 pounds of Logwood. This quantity was exported in 109 vessels, of which 44 were French, 28 German, 16 Spanish, 7 American, 5 English, 4 Danish, and five vessels belonging to Mexico, Venezuela, Belgium, Holland, and Italy, one to each country. The question has been asked how much of the above quantity of logwood carried in the 88 French, German, and Spanish vessels, was used in the manufacture of "genuine ports and clarets" abroad?

A patent device for economizing fuel has recently been put into the Lewiston (Me.) Mills. It consists of a hopper and a mill for grinding coals, reducing the fuel to fine dust, which is carried by the blower into the furnace with air enough to produce immediate combustion. The coal dust leaps into the flame like a flake of powder. It is claimed that this device saves thirty-three per cent. of the expense of making steam. It is said that steam can be generated in one-half the time required by the ordinary use of fuel.

James Watt, the noted English inventor, left no descendants. It appears that the men noted for mechanical genius, like many of those famous in literature, science and government, have no children to perpetuate their names. Shakespeare, Milton, Bacon, Newton, Harvey, Pope, Mansfield, Goldsmith, Congreve, Hume, Bishop, Butler, Locke, Hobbs, Adam Smith, Bentham, Davy, Sir Joshua Reynolds, Sir Thomas Lawrence, Byron, Lord Clyde, and others well known to fame in British annals, have no lineal representatives now living.

The Sutro tunnel in Nevada, says the Colorado (Georgetown) Herald, is 1,250 feet. Blue clay of a very tough character has been encountered for the past week, and the progress has been slow. An air shaft has been sunk 20 feet. It will be 175 feet deep when completed. Arrangements are about consummated for the commencement of four other shafts, designed to furnish air, as well as to facilitate the prosecution of the work on the tunnel.

The earnings of the Suez Canal have not been sufficient to pay the interest coupons due July 1st. Although the payment has been deferred, the directors state that the coupons will take precedence in the future distribution of the earnings, which it is hoped will, by the growth of the traffic, soon increase rapidly.

Kentucky University.

We have received the catalogue of this University for the present year and have reviewed it with great interest.

We give the general plan of the University as presented in the Report:

"The University embraces several Colleges, each under the immediate government of its own Faculty and Presiding Officer. The general supervision of the University as a whole is committed to the Regent, who is elected from among the Curators, and is *ex-officio* Chairman of the Executive Committee, whose duty it is to see the general law and statutes of the University faithfully executed.

Each College is divided into several Schools or Departments of Study; and each school is under the immediate government and instruction of a competent Professor, assisted, when necessary, by subordinate Instructors and Tutors.

The Colleges of the University are severally styled—

1. The College of Science, Literature, and Arts.
2. The Agricultural and Mechanical College of Kentucky.
3. The College of the Bible.
4. The Normal College.
5. The Commercial College.
6. The College of Law
7. The College of Medicine.

While the course of study and instruction in each College is full and complete, yet the four first named above are so associated that a student, regularly matriculated in any one of them, may have the benefit of instruction in the others without additional charge for tuition.

There are some features in the plan of Kentucky University which are peculiar. The general superintendence of the whole Institution by the Regent, who is not connected with any Faculty, but who is the Representative of the Curators and Donors, gives unity to the whole plan; while the distribution of the executive labor and responsibility among the Presiding Officers of the several Colleges secures efficiency in every department. The several Colleges thus associated furnish the most liberal provisions for education, whether collegiate or professional, general or special; and that, too, without the expense and embarrassments that would result from a duplication of professorships. If a young man desires to pursue a classical course exclusively, he can do so, and receive a certificate of graduation for the same. If he desires to devote himself to Science or Arts, to receive a good Commercial and Business education, to graduate as a Civil Engineer, or to study Mining or any other specialty, he will enjoy the like facilities without additional expense. Should a student desire to reduce the ordinary expense of board and tuition, the Agricultural College presents to him the opportunity for laboring, at a reasonable compensation, on the College Farm, or in the Mechanical Shops, while he is receiving thorough instruction in Science and Literature. This union of study and labor is thus not only economical, but also conservative of health and good morals.

The Agricultural and Mechanical College also embraces a thorough course of instruction in Military Tactics, which is made valuable as a means of physical development as well as of collegiate discipline.

This general plan of the University, with its peculiar features of government and discipline, with its Associated Colleges and their separate Schools, and with its various Elec-

tive Courses of Study, including Industrial Education, with all its economic arrangements, makes it emphatically an Institution *for the People*."

The history of this institution is so interesting that we make the following abstract of it:

"In the year 1855, John B. Bowman, of Mercer County, Kentucky, while quietly pursuing his profession as a farmer, conceived the plan of founding in his native state a *University for the people*. Appreciating the necessity of more liberal provisions in the way of education, both general and professional, than were presented at that time in the South and West, he resolved, though a young man, to devote his life to the founding and upbuilding of an Institution that should be especially accessible to the *poor young men* of the country. His main object was to reach the masses when, for the most part, were virtually debarred the privilege of a liberal education in consequence of the heavy expense attending most of the American colleges.

From the beginning, Mr. Bowman's plans were liberal and comprehensive; and, though they were regarded by many as the chimera of a young man, he never seemed to doubt for a moment their ultimate realization. His purpose, in a word, was to establish a University in its full and true sense, on a *Modern, American, and Christian* foundation. In one of his earliest addresses to the public he expressed his views and intentions as follows:

"Why should we not be as progressive in the cause of education as in our industrial and commercial enterprises; and why should we be dependent upon New England or Old England for our best educational facilities when we are so rich in ability to have our own, and when our wants in this respect are so varied and pressing? It is true that we have scattered all over the West and South scores of unendowed, half starved, sickly, puny institutions called Colleges and Universities, many indeed of which have their piles of brick, stone, and mortar, making an imposing show; but how many of them, in the way of Endowments, Scholarships, Libraries, Museums, and *literary and scientific men*—the *true* apparatus of an education—are prepared to furnish to our young men such a liberal education as the times and the peculiar circumstance of our age and country demand?"

In a report to the Curator he says:

"I have but one desire in all this matter; I want to see accomplished through this Institution the *greatest good to the greatest number* of our poor fallen race, thus giving the *greatest glory to God*. I want to build up a *peoples Institution*, a *great free* University, eventually open and accessible to the poorest boy in the land, who may come and receive an education *practical* and suitable for any business or profession in life. I want to cheapen this whole matter of education, so that under the broad expansive influence of our republican institutions and our advancing civilization, it may run free as our great rivers, and bless the coming millions. Hitherto, our Colleges and Universities have been accessible only to the few, so great are the expenses attending them. We therefore want a University with its complement of Colleges affording education of the highest order to all classes. We want ample grounds, and buildings, and libraries, and apparatus, and museums, and endowments, and prize funds, and professors of great hearts and heads, men of faith and energy. Indeed, we want every-

thing which will make this Institution equal eventually to any on this continent. Why should we not have all? I believe there are noble men enough all over this land who will give us the means which God has given them, if we will only move forward to the work before us like true men."

It was the policy of Mr. Bowman to found the proposed University on the ruins of Bacon College, an institution which, after flourishing for a few years under one of the ablest Faculties in the West, failed at last for want of sufficient endowment. Gathering up the wreck of this College, his own Alma Mater, Mr. Bowman, seconded by a few liberal-hearted citizens of Mercer in the inauguration of the enterprise, abandoned his farm and all the comforts of a pleasant home, and in the winter of 1856, with a firm reliance on Divine Providence, began his labors.

Without the usual heraldy of the pulpit and the press, and without the prestige of a name known to fame, and in the face of a strong and decided prejudices against Colleges then prevalent in Kentucky, and amid the doubts and discouragement of friends, he made his appeal to the people. They responded with a degree of liberality unexpected, and indeed unprecedented in the state. In one hundred and fifty days of actual labor, he obtained subscriptions to the amount of \$150,000, which sum he soon increased to \$200,000, a large proportion of which was secured in notes of \$500 and \$1,000, mainly from the substantial farmers of Central Kentucky.

During the year 1858 and 1859 the work of endowment was earnestly prosecuted. The actual investment having reached about \$100,000, it was deemed expedient to organize one of the Colleges of the University. Accordingly, the College of Arts was opened in September, 1859, under the presidency of R. Milligan, assisted by an able corps of Professors. Nearly two hundred students were in attendance the first session. This department of the University having been thus successfully inaugurated, Mr. Bowman next addressed himself with renewed energy to the work of supplying the Institution with the necessary apparatus, Buildings, etc. He soon raised a sufficient sum for the purchase of a fine suit of Chemical and Philosophical Apparatus, which he secured for the Institution on most favorable terms. He also made an earnest effort to secure grounds and buildings adapted to the demands of a great university.

During the year 1866 Mr. Bowman purchased for the permanent site of Kentucky University with its various Colleges "Ashland," the homestead of Henry Clay, and the adjoining estate of "Woodlands," which extends within the limits of the city of Lexington. The entire tract contains four hundred and thirty-three acres of land, unsurpassed for beauty and fertility. It is now the seat of the Agricultural and Mechanical College.

Under these favorable circumstances, the University has entered upon its career of usefulness with greatly increased facilities, and with the assurance that its founder, now its Regent, will labor on for the full development and perfection of his plan. It is confidently believed that, with its superior advantages of location, its splendid basis in the way of endowment and real estate, its able Faculties, and its moral and social surroundings, Kentucky University is destined, under Providence, to exert a mighty influence upon the educational interests of the Valley of the Mississippi.

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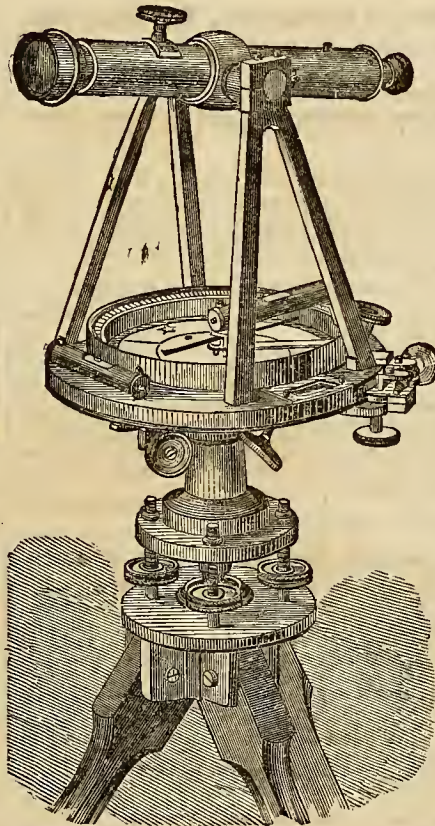
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BUFFALO to NEW YORK, - 423 Miles.

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Leave CINCINNATI from DEPOT, corner Fifth

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7.00 A. M. CINCINNATI EXPRESS,

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Urban, 10.29 A. M.; Galion, 12.57 P. M.;

Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine).

(Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.;

Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast);

Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M.

Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland;

at Elmira for Williamsport and the South; at Binghamton for Coopersown,

Albany and the celebrated summer resort, Sharon Springs, and at New York with

afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urban, 1.25 A. M.;

Galion, 3.58 A. M.; Mansfield, 4.44 A. M.;

West Salem, 5.59 A. M. (Breakfast); Akron, 7.38 A. M.;

Ravenna, 8.25 A. M.;

Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper);

New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg,

Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City;

at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with

morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the

Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through

860 Miles without Change.

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The Erie Railway Company has opened a new Ferry from New Jersey City Depot to the foot of Twenty-third Street New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this line, will find in its ever changing landscapes such objects of continual admiration and interest.

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And Fare always as Low as by any other Route.

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Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet H. use, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

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Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West, North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 pm
St. Louis and Springfield Express....	7.40 pm	7.35 am
St. Louis and Springfield Express....	10.30 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	3.35 pm
Lawrenceburg Accommodation.....	4.0 pm	8.25 am

*The 10.50 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.08 am	10.15 am
Chicago Express.....	6.50 pm	9.3 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pray Streets. The splendid Passenger Depot of the L. & C. Railroad is about a mile northeast of business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7.40 A. M.	6.30 P. M.
do do do.....	9.45 A. M.	7.00 A. M.
Toledo, Detroit & Canada.....	7.15 P. M.	10.25 P. M.
do do do.....	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago.....	7.15 A. M.	10.25 P. M.
do do do.....	2.30 P. M.	5.40 P. M.
do do do.....	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo.....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	2.20 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo.....	6.30 P. M.	10.20 A. M.
Muncie & Indianapolis.....	7.15 A. M.	10.25 P. M.
do do do.....	5.40 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond.....	7.15 A. M.	10.25 P. M.
do do do.....	5.30 P. M.	10.20 A. M.
Hamilton Accommodation.....	9.30 A. M.	8.05 A. M.
do do do.....	6.50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

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Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Louisville Mail.....	7.30 A. M.	9.05 A. M.
Louisville Fast Line.....	1.20 P. M.	11.15 A. M.
Louisville Express.....	5.00 P. M.	8.45 P. M.
Louisville Night Express.....	11.15 P. M.	5.00 A. M.

The Low Fare Season and Commutation Tickets, good on the Walton Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot in Covington, Ky.

SAM'L GILL, Gen'l Sup't Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Haddon Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6.55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahannock &c.

7.15 a. m.—For Somerville.

8.30 a. m.—For Flemington, Junction, Stroudsburg Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Luz., Pottsville, Scranton, Harrisburg, &c.

3.30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4.30 p. m.—For Somerville.

5.25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7.20 p. m.—EMIGRANT—Stopping only at the principal stations.

9.00 p. m.—For Plainfield.

11.50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Care to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5.45, 6.30, 6.55, 7.15, 8.15, 8.30, 9., 9.20, 10.30, 11.40 a. m.—12 m., 1.10, 2.10, 3.00, 3.30, 3.45, 4.15, 4.30, 4.45, 5.10, 5.25, 5.45, 6.00, 6.25, 7.10, 7.2, 7.40, 8.0, 9.00, 9.40, 10.45, 11.50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, } Editors.
T. WRIGHTSON, }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - - THURSDAY, AUGUST 25, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING.

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An Interview with Coal and Iron; Ohio Mineral Region; Atlantic Railroad.

Two things are very fashionable just now; one is to visit watering places, and the other to “interview” great people. The first we have not done, for if the multitude go one way, we go the other. But the last we have done, and done with success. We have interviewed Mr. Coal and Mr. Iron, and found both gentlemen in a conversable mood and full of information. They have revealed to us many things most valuable and interesting. Indeed, we doubt whether anybody is fully acquainted with all the things we have seen and heard. Let us report a little of what we saw and heard. In the first place the readers of the RECORD already know that the *Atlantic & Lake Erie Railroad Company* in the month of June put under contract 106 miles of their road, extending from Bucyrus (Crawford county) to the northern line of Athens county. On the 16th of August the board met and put the line under contract from Bucyrus to Toledo—making in all 187 miles, from Toledo to the northern line of Athens county, the last 20 miles (in Perry county) being through Sunday creek valley, probably the largest deposits of coal and iron in the county; but of that we shall speak hereafter. The 6 miles from the line of Athens county to Chauncey will probably be let in a few weeks, and will complete the line in the valley of Sunday creek. The final terminus of the Atlantic & Erie Railroad will, it is supposed, be at Pomeroy, with a branch

to Guyandotte to meet the Chesapeake & Ohio Railroad. The whole Atlantic & Erie Railroad, from Toledo to Pomeroy, is, it will be seen by a map, transverse to nearly all the railroads of Ohio, and therefore he a line to which there will be no competition. Heretofore we have made railroads in Ohio on the theory that every railroad must go East and West ultimately. New York has been assumed to be the one point in the universe. This is a great mistake, a very great mistake. When the Atlantic & Erie Railroad is made, it will be seen how great a mistake has been heretofore made. But it is not my purpose to dwell on that, we shall have a further opportunity of discussing the Atlantic road. In the meanwhile it is sufficient to say, that the Atlantic & Erie company have actually commenced operations. We were in the office of the engineer (Mr. Gregory), and saw his maps and profiles, and were astonished to find that among the hills of Perry county he got better grades than on any of the roads East. The contractors have commenced work, and hundreds of laborers are now congregating on the line, south of New Lexington. But we must proceed. The cars of the Muskingum Valley road took us to New Lexington, and thence we proceeded with carriages from New Lexington south, in the valley of Sunday creek. For twenty miles that little valley was to me a museum of curiosities. If it had no interest as the future scene of industries and wealth, which will rival anything which Europe or America has seen, yet it is exceedingly interesting as a deposit and development of most curious and extraordinary mineral formations. We took two days in examining these strange productions of nature, and came away convinced that we had seen nothing equal to them, and that probably nothing more extraordinary in mineral deposits existed in one spot. That the reader may understand it, we will refer him to a geological section map now engraving for Professor Andrews, the practical geologist of Ohio. We can give the reader some idea of it in a few words.

Supposing that in the valley of Sunday creek and on the summit of one of the highest hills, we sink a perpendicular shaft some 300 feet deep, and mark the different kinds of materials we pass through, we shall find these results:

1. Several strata of sandstone rock, between which are the mineral deposits, shale and common earth.
2. At intervals, varying from 20 to 60 feet, we shall find various strata of coal, some of it the most valuable in this country.
3. In the intervals of sandstone and earth, we shall find several strata of iron, comprehending almost every variety.
4. Mixed in, at different places, we shall find several kinds of minor minerals, such as alum, borax, etc.
5. If we continue the shaft 1,000 feet lower we shall find strong salt water.

All these and other things we can not here mention, will appear in the forthcoming geological map of Professor Andrews of the Geological Survey.

Without discussing at all the geological question connected with this vast deposit of mineral wealth, let us look a moment at its intrinsic value.

1. Of coal, there are three strata of great value. These, separated by vast bodies of sandstone rock, crop out at different heights respectively, of 4 feet, 6 feet, and 12 feet in thickness, and crop out for a great distance nearly on a level with Sunday creek, sometimes a little above and sometimes a little below. Many persons raise their eyes on being told of a 12 foot bed of coal, as if incredulous; and even geologists are doubtful, as if it were a large story. Nevertheless this bed of coal is not only a fact, but it is a fact over one hundred of square miles, where it is so accessible that the cost of mining and getting out must be very small, an absolute minimum. At one point, on Sunday creek, we found a neighborhood mine open, and a small steam engine. We went in, and had the height of the vein of coal measured, and it was *twelve feet thick*; and we saw no reason to doubt that this continued to be the case for many miles. In this mine a cube or column was cut out and sent to the Board of Trade in Toledo. This cube was *twelve feet two inches* in height. If the reader will imagine such a thickness of pure coal extending for twenty miles around, he will begin to comprehend what an incalculable value this must be when capital and industry are applied to it. But if there were no such vein, the others would be enough to supply the whole county. The 4 foot vein is a most excellent one.

Another and the most important element in the Sunday creek coal is that it is all of the very best quality. The “great vein,” or 12 foot stratum, is the “Brier hill coal,” which is found on the upper border of Mahoning county, and is the best in the county for smelting iron, and it is here deposited just where it is wanted, for we now come to Iron.

It would be impossible to describe the iron on Sunday creek, for it is found everywhere, in the hills, vales and roads. We saw five different varieties there, and two or three small specimens of the “specular” iron, but we could not find any stratum of that kind. The varieties of iron we did find, as described by an iron manufacturer with us, were,

1. Limestone ore, varying in thickness from 3 to 5 feet.
2. Kidney, about 18 inches thick.
3. Red or hog hematite, about 3 to 6 feet thick.
4. Brown hematite, from 3 to 6 feet.
5. Fossil kidney, from 3 to 5 feet thick.
6. Limonite, 2 feet thick.

Here is iron enough, surely, for anybody. Such a county for manufacturing as this is, we never saw, and we do not believe one an-

terior to it can be found anywhere. But this article is long enough, and we must leave for another opportunity the further description of a county, which, to the lover of nature or science, is full of the interesting and the marvelous.

Virginia Notes.

EDITORIAL CORRESPONDENCE.

CINCINNATI, August, 1870.

RAILROAD RECORD:—The time had come for my departure from Richmond and return home. The old question came up of a choice of routes, and I finally selected the one via Acquia Creek, Washington, and Baltimore & Ohio road.

At the appointed time I bade farewell to the many friends that had treated me so kindly during my short stay in the capital city of Virginia, and was soon on the wing again for the Potomac.

The day was very hot, the road dusty, and the passengers few, but as they were sociable and quite intelligent, we soon became acquainted, and the time flew quickly and pleasantly over.

One of the passengers was from South Carolina, and had been an officer in the Confederate army, and had served in every battle from the Rappahannock to Richmond, and knew the ground we were passing over well. These battles became a subject of conversation, and he expatiated very learnedly about them, and showed very plainly, to us, who are inexperienced in the ways of war, where the mistakes were committed, and what ought to have been done, and what ought not to have been done, to have secured the Confederate success. And as we passed points that bore the evidence of rifle pits, stockades, and earth forts, he called our attention to the position of the armies in these localities, and pointed out their movements as well as was possible under the circumstances we were placed in.

"Here," said he, as we stopped at some insignificant station a few moments, "occurred a most terrific struggle for the possession of this railroad. We both lost and both won; but we left it finally in the hands of the Yanks. It did them no good, however, as it was a wreck for many miles."

At Fredericksburg we stopped long enough to look over the old town a little, and in company with our Carolina friend walked about and learned from him a great deal of the fearful battle that took place here between the armies of Lee, and Burnside and Joe Hooker.

There are still many evidences of the strife hereabouts. Piles of debris, naked brick walls, here and there a straight and solid looking brick chimney rising from a pile of brick and timber and broken plaster, like a monument of departed glory, and the mutilated gables of a few of the tallest buildings that stood in the range of the cannon.

We were soon rattling over the bridge that crosses the Rappahannock, and in another minute had rounded the hill, and were flying at a good rate towards Acquia Creek.

This is a curious termination for an important line of railway. A low spot, a sort of quagmire at the mouth of a little stream that empties into the Potomac, and lies under the barren, sandy heights that for some distance reach back from the shore, yet it is the scene of a large amount of business.

The ruins and burnt piles of the old wharf and warehouses, destroyed during the war, rise out of the water black and shapeless, and look melancholy enough. The new wharf and station house are built beside these ruins, and are very primitive, more like the temporary conveniences of a new Western railroad company who were crowding things through upon half means, than what one might expect would be constructed by the owners of a great thoroughfare between the national capital and that of the great State of Virginia.

At this point we found a fair sized and gay looking steamer awaiting us. The transshipment of goods, mails and passengers was quickly made, and after a great deal of bell ringing and steam screaming, and a few ineffectual attempts to get out into the stream, it was discovered we were hard aground. The tide had gone down, and the keel of our boat was stuck in the mud. There was then a scene of pulling and prying and levering, and after awhile the sand and mud came to the surface and stained the water for some distance about us to a dirty yellow. We were moving, and the motion was kept up by a vigorous use of the paddles. As we started down the stream the keel of our ship occasionally scraped the bottom, but soon finding deep water she struck straight for the middle of the current, and headed up stream steamed away at a good round rate.

On board of this boat we had a capital dinner, and a capital time generally. The intense heat had abated somewhat, a nice fresh breeze sprung up. The passengers gathered at the bow, and entered into a sociable chit-chat that made every one of the party happy.

Thus glided away the hours until we were in sight of the mighty dome that crowns the nation's capital, when the frail ties of traveling acquaintance were broken, and each individual began a preparation for disembarking.

The remainder of the day I spent at Washington. What a dull, dreary, miserable place during the Congressional vacation. I could hardly realize that this was the bustling, stirring city that I was in a few weeks since. The dust rolled along the streets in unobstructed clouds, there was not a team or a carriage in the way. The sidewalks were vacant, the stores were without occupants, save the clerks who were lounging about and yawning away the long, dreary, idle hours.

The hotels, usually seething with life, were so quiet that the sound of footsteps upon the tessellated floors echoed through the tenantless halls and startled the sleepy clerk from his reverie. Even the hackmen, the noisiest and most pestiferous creatures on earth, snoozed upon their seats, and let their jaded horses rest.

I had concluded to return by way of the Baltimore & Ohio road, and at the appointed hour, to the very minute, the train started. "Twenty-three hours to Cincinnati," said the bills. I noted the time of departure for the purpose of testing the truth of this advertisement. We were now fairly under way, and flying past the stations upon that barren piece of earth that ties Washington to Baltimore. At the Relay House we struck off into the mountains, running upon the margins of the loveliest streams that course the mountain passes—crossing bridges that span creeks, or rivers, or chasms—tearing through long, dark tunnels, and climbing the craggy sides of mountains too lofty to dig down and too broad to dig through, and winding gracefully about the feet of others whose forest-clothed tops towered high up in the air, or were hid from view by some great, overhanging, threatening cliff.

"How splendidly we run," said a gentleman to me, as we were rounding a mountain base and emerging into one of those beautiful and fertile valleys that lie embosomed in the Alleghanies. "It seems to me," he continued, "that there is not a mile of straight road upon the route, and yet we run evenly, and are making good time. This road must certainly be well managed."

I replied that it was one of the best directed roads in the country—that it was the road of all others, notwithstanding its dangerous physical features, upon which there has been the smallest per centum of accidents in proportion to the business transacted upon it; and that it had the reputation, and undoubtedly deserved it, of making uniformly the best time from the Atlantic to the Western States, and that no corporation anywhere can boast of a more courteous, intelligent and attentive set of officers.

"These are great recommendations," said my friend, "and I hope they promote the prosperity of the company to the extent such merits deserve."

Being somewhat intelligent upon the history of this company, I gave this gentleman an outline of its early struggles, and how it had met and overcome obstacles of the most stupendous nature, passed through financial reverses, and perils of water, fire and war, and yet arose after every such catastrophe stronger than before. And how it had grown in strength and importance with the advancement of the great West; and of the comprehensive and commanding policy of the managers, who had expended such vast sums of

money in the construction of wharves at the city of Baltimore, and in establishing lines of transatlantic steamers, and in the erection of commodious station houses and grand dining saloons, and in securing connections with the business centers of the interior, strong in the conviction that the return would be certain and handsome in proportion to so an intelligent an outlay.

The scenery upon this route is very grand. There is nothing superior to it in the whole Appalachian range of mountains. The river and rock views of Harper's Ferry and the whole Cheat river country will compare favorably with some of the famous features of the Alps. Much of the beauty of this route is lost to the traveler for want of that modern and elegant convenience, "open cars," in use upon the Pacific road to exhibit the majesty of the Rocky Mountains, and very popular with all tourists of taste and culture. Would it not be a good venture to place such a car upon this road? We think so, and so thought all the passengers upon this trip with whom we talked upon the subject.

As we entered the valley of the Miami, running at the same rapid rate that had been kept up from the beginning, we consulted our watch again, and calculated the difference in time from the point of departure to that of our destination. There was time to spare, but the stoppages at road crossings, and reduced rate of speed as we neared the city, brought us all safely and satisfactorily into the very heart of Cincinnati in just twenty-three hours from the time we left the city of Washington.

The cards spoke truly, and every passenger upon this trip is a living advertisement to the good condition of the road and its enlightened and thorough management. CELINA.

NEW MUSIC.—"The Mariner's Farewell," music by C. Langoanere, and words by M. E. Walsh, for soprano and tenor voices, is a very fine air and the words good. "Oh for the Life of a Gipsy Girl," music by L. E. Skinner, words by Alice Carey, is very pretty, but rather difficult for young pianists. "As Good as Gold," by Alfred Lee; this is very good, and will give satisfaction to all. "Woodside Mazurka," by Frank Van Duzer, is a very easy piece. "Life's Enjoyment Gallop," as played by Heidel's Band, is very fine. The above were placed on our table by JOHN CHURCH & Co., who keep supplied with all the latest music.

There are two thousand men in the German army from the factory of Fried. Krupp, the celebrated manufacturer of steel and steel cannon at Essen, Prussia. There are still, however, about eight thousand work people left in the factory. Hence, we should naturally infer that the resources of Germany in the "material of war" are not quite exhausted.

A NEW KIND OF CHOIR.—The bickerings and quarrels of church choirs have been proverbial from time immemorial. Although good people have always grieved over these troubles, no one seems to have ever thought of investigating the cause of them. Mr. A. N. Johnson, the author of Johnson's Thorough Base, and other well known musical works, has recently made such an investigation. It seems that to sing a tune so that its performance will be satisfactory to either singers or listeners, every movement of the vocal organs, every emotion of the mind, and, in fact, every act which exercises any influence upon either the musical tone or the musical effect, must be performed by every member of the company of singers exactly alike and exactly together. Yet, although the performance is never satisfactory to either singers or listeners unless this is done, American singing books have never given any instructions which would enable singers to thus perform these acts alike, but have left their performance to chance. The result has been that American choirs have been in the same state, as far as training is concerned, as companies of soldiers would be, who should perform all movements and maneuvers haphazard, instead of drilling patiently upon each one until every member can perform it alike and together. It is no wonder that choir members quarrel over such unsatisfactory performances. Members of military companies would quarrel quite as much if their exercises were equally unsatisfactory. Mr. Johnson has invented a system of "musical tactics," which will enable a company of singers to train on the same principle that a company of soldiers do, thus enabling them to produce that satisfactory effect which all choirs wish to produce, and doing away entirely with all the causes of quarrels and bickerings. These "musical tactics," as soldiers would call them, denote every act or emotion which exercises any influence upon the tone or effect, by a brief sentence, which is called a "musical word of command." The company of singers learn the meaning of each word of command, and drill upon it until they can execute it simultaneously, just as a company of soldiers drill upon military words of command. This simple process enables a choir to become thoroughly disciplined, not only with ease, but with the most interesting kind of musical practice. This system is contained in a new work just issued by Mr. Johnson, called the "TRUE CHOIR."

The True Choir is published by J. CHURCH & Co., of Cincinnati, who will forward a pamphlet describing this new system, gratis, to any one who desires it.

—A new route for the Union & Titusville road is being surveyed on the south side of Oil Creek, between Titusville and Centerville. By this route the road would pass through Tryonville, and the grade is easier than by the former survey.

The Erie.

A denizen of our city recently made a flying trip to New York and Buffalo over the Erie, and upon his return discourses in the *Commoner* as follows:

Leaving Cincinnati on the 4th inst., we reached New York city, by the Erie route, on the 6th, after a pleasant journey, unbroken by the annoyance of a single change of cars.

Looking from our window we could see a changing vision of unchanging loveliness, such as lines the track of no other railroad in the United States: broad campaigns, with graceful willows, skirting the green banks of placid streams; old farm houses, with clustering chimneys and ivied gables, steeped in the foliage of ripening orchards; wide fields, with golden wheat sheaves standing in long and serried lines; still hamlets, where people grow green, inordinately green at that, and finally go to seed—oblivious of the din and whirl of the great world lying outside the horizon of their drowsy lives; thriving towns, with grey roofs and tall white spires, cut in bus relief upon the sky.

Entering New York, the character of the scenery changes. No where in the West, for instance, is there a village bearing the remotest resemblance to Jamestown, situated on a commanding bluff, overlooking Lake Cattaraugus. The houses are uniformly white frame—many of them possessing towers, piazzas and terraced gardens.

Passing through the Genesee valley, the traveler sees great mountains, scarred with the rains and winds of unnumbered centuries, rising abruptly from the primeval forests and cultivated fields on the banks of the Alleghany river, and shutting out the horizon like a wall. Thoreau said he never looked upon mountains without experiencing a sensation of the profoundest awe, and could realize why the pagans imagined their god dwelt upon the heights of Olympus, and held his court with the great bards and prophets, warriors and kings who had passed from time.

The sun was struggling with the morning mists as we crossed the Jersey flats, lighting the sky with gold and scarlet—flaming in the occasional clumps of trees until the birds broke into a miracle of singing—sparkling in the tall, rank grass, oversprinkled in richest profusion with wild crimson flowers. Crossing the Pavonia ferry to New York city, we were soon threading the thronged thoroughfares of the metropolis of America. Our stay was limited, however, to two days, and the evening of the 7th inst. found us at the Erie depot, bound for Buffalo, where we arrived on the noon of the 8th. It is undoubtedly the most beautiful city in the country, with broad breezy streets, lined with a perfect forest of shade trees, with splendid residences, surrounded with lawns, and revealing occasional glimpses of fountains and statuary. The home of Ex-president Fillmore, on Niagara Square, is a fine stone building, embowered in leaves, and presenting an aristocratic appearance seldom seen in American houses.

After a pleasant conversation with Dr. Lothrop, the Superintendent of the Public Schools, and a delightful drive through the principal streets of the city with his brother, an old college friend, we took our departure for home.

In conclusion we would advise the readers of the *Commoner* who contemplate visiting the East, to patronize the Erie, assuring them that in the magnificence of its appointments,

in the attractiveness of the country through which it passes, and in the railroad talent by which it is controlled, prominent among whom stand Fisk, Gould, Barr and Shattuc, it is unequaled by any rival line.

RAILROAD COUNTY SUBSCRIPTION DECISION.—There is probably no country in the world where the authority for the creation of debts for future generations to pay is so unlimited, or in which public sentiment is sounder as to full payment, as in this. No man in or out of office, having the least self respect, or hoping anything of public favor, ventures to hint such a thing as repudiation. That is a sentiment happily fast dying out. The repudiating counties of Iowa a few weeks ago received notification from Federal authority that the bonds issued in aid of railroads must be paid. The United States Court has told them plainly that the people of the counties and municipalities concerned "must abandon all hope of escape from payment of these bonds." "They must be paid, and the officers of the Court will be sustained by the power of the Government." This decision has attracted little attention at the East, but it is really of considerable consequence. It marks one stage of a long standing case of conflict of authority, but whether it will be the final stage it is yet impossible to say. The case is briefly this: The counties voted to issue the bonds in question to secure the completion of a railroad. The road was built, but before that time the people had become sick of their bargain, and not only retracted their agreement but they elected county officers pledged to refuse issuing the bonds. The case went into the State Court where the action of the counties was sustained. An independent suit was brought into the United States Court, and the counties were directed to issue the bonds. The officers still refusing to obey the mandate of the Court were arrested and punished for contempt, but notwithstanding this they have hitherto resisted the efforts to compel them to comply. The matter has since been reopened and tried anew, with the result which has already been noticed — *Register*.

RATES OF FREIGHTS TO THE WEST.—The managers of the rival railroad lines from New York to the West held a conference at Saratoga on the 23d, at which Vanderbilt, Gould and others were present. An advance of the passenger tariff at an early date is generally believed to be agreed on, and it is stated there is a fair prospect of an amicable division of the business between the three roads, Erie taking the live stock and heavy freights, and the New York Central and Pennsylvania Central the bulk of the passenger traffic.

The stock transportation between Buffalo and New York, which has been one dollar per car all summer, has been advanced to one hundred and forty dollars, with a prospect of a still further increase. The Erie and Central managers are also said to have agreed not to extend their contracts with the United States and American Express Companies, and will soon take control of the express business over their lines.

The following is the list of the new first class freight prices adopted on the three roads: New York to Cleveland, 53c. per cwt.; Columbus, 77c.; Cincinnati, 90c.; Indianapolis, 92c.; Evansville, \$1 10; Louisville, Ky., \$1 12; St. Louis, Mo., \$1 25; Quincy, Ill., \$1 25; St. Joseph, Mo., \$1 72; Chicago, Ill., \$1 00. Following are the rates by steam via the lake to Detroit: Cleveland and Toledo, 63c.; to Chicago and Milwaukee, 71c.

PROPOSED PARIS METROPOLITAN RAILROAD.

—The Paris correspondent of the *Engineer* writes as follows of a plan for connecting the railroads of Paris and providing communication between different parts of the city:

"A plan for a metropolitan railway, connecting all the central quarters of the city with the termini of the main railways, is under consideration. The concession is given provisionally to a company which is prepared to execute the line without any grant of money. The only question that retards the realization of this project is between the adoption of an ærian or subterranean line; it is feared that the former would produce a disagreeable effect at the crossings of the streets, while the underground system would interfere greatly with the whole system of sewers, water and gas-pipes. The opinion seems to be that the use of Bessemer steel in the construction of light arches of considerable span will decide the question in favor of the ærian system. In connection with this line for the rapid and economical transport of passengers the Administration proposes to add lines for the special service of the central market; but this latter project is not decided upon, the great difficulty being to create in the centre of Paris a sufficiently large station to receive all the goods that come to market daily, and which, as it is, crowd all the railway termini. At the time of the construction of the great central market, provision was made beneath it for such a terminus, but we presume that the site is now found to be insufficient for the purpose."

NORTHERN RAILWAY OF FRANCE.—The permanent way of the old network of the Northern Railway of France was renewed last year with new rails to the extent of one-eighteenth of the whole quantity of rails originally laid down, so that in eighteen years this portion of the system will be entirely renewed at the present rate of renewal. The administration also continues to introduce steel rails in those portions of the system over which the heaviest traffic passes.

OUR INLAND SEAS.—The following figures relative to the five fresh water seas lying mostly within the northern borders of our territory may be of interest. Of these the largest, Lake Superior, has near it some of the most valuable mineral deposits, which are being brought in the largest vessels to Cleveland, Pittsburg, and other manufacturing centers for utilization. Lake Erie, one of the smallest, is the most dangerous to navigators, being subject to the wildest agitation by wind and storm. The greatest length of Lake Superior is 335 miles; its greatest breadth is 160 miles; mean depth, 688 feet; elevation, 627 feet; area, 82,000 square miles. The greatest length of Lake Michigan is 390 miles; its greatest breadth, 108 miles; mean depth, 900 feet; elevation, 506 feet; area, 23,000 square miles. The greatest length of Lake Huron is 200 miles; its greatest breadth is 160 miles; mean depth, 600 feet; elevation, 274 feet; area 20,000 square miles. The greatest length of Lake Erie is 250 miles; its greatest breadth is 80 miles; mean depth, 84 feet; elevation, 555 feet; area, 6,000 square miles. The greatest length of Lake Ontario is 180 miles; its greatest breadth is 65 miles; mean depth, 500 feet; elevation, 260 feet; area, 6,000 square miles. The length of all five is 1,584 miles, covering an area of upward of 90,000 miles. — *R. R. News*.

Synopsis of the Amended Patent Law.

[From the Scientific American]

We have now before us a copy of the law to revise, consolidate, and amend the statutes relating to patents, recently enacted by Congress. It contains no radical changes, but simply codifies the old system, and reduces it into more compact shape. We do not consider it necessary to print the entire text of the bill, but will present a summary of its chief features.

The officers provided for are a Commissioner, Assistant Commissioner, three Examiners-in-chief, Chief Clerk, Examiner-in-chief of Interferences, twenty-two Principal Examiners, twenty-two Assistant Examiners, Librarian, Machinist, five clerks, class 4; six clerks, class 3; fifty clerks, class 2; forty-five clerks, class 1; and purchasing clerk.

Additional clerks, male and female, copyists, etc., *ad libitum*, or according to necessity.

The claims and engravings to be no longer published in the report. The annual report to contain only a list of the patents.

The three Examiners-in-chief required to be persons of competent legal knowledge and scientific ability.

No other persons connected with the Patent Office required to have such qualifications.

Models to be furnished when required by the Commissioner.

The printing of the patents and drawings is authorized, and we trust that the Commissioner will make the work creditable to the advanced state of American art and invention.

All persons may take patents, provided the invention has not been in public use for more than two years.

No discrimination is made against Canadians. The law requiring foreigners to put their inventions on sale within eighteen months is abolished.

Assignments void, as against a subsequent purchaser, unless recorded within three months from date.

All cases can be appealed from the Commissioner to the District Court, except interference cases.

In cases where a patent is refused by the District Court, an appeal by bill in equity may be taken.

Disclaimers may be filed.

Designs may be taken by all persons—no discriminations. This will enable foreign manufacturers to protect themselves against having their designs copied, which has hitherto been quite extensively practiced in this country, especially in the production of textile goods.

Trade-marks may also be protected by firms or individuals. Twenty-five dollars for fifty years, with right of renewal.

The above are the more important changes made by the new law. They are simple, and in the whole commendable.

—The English national debt is six hundred million dollars less than it was at the close of the war of 1815, and three hundred and fifty million less than at the close of the Crimean war.

—Romer, a Danish astronomer, who flourished in 1676, was the first person who discovered the velocity of light, which he calculated to be at the rate of 167,600 geographical miles a second.

How Glass Paper Weights are Made.

Every one knows those paper weights of solid colorless glass in a hemispherical shape, in the center of which are bouquets, portraits, and even watches and barometers, etc., etc., but few persons know how or by what means these things are incarcerated in the center of the glass. There is a great distinction to be made not merely between the objects, but also between the materials of which they are composed. As those representing flowers or bouquets in glass—those from which the name is derived—are the most ancient and the best known, we will begin with them.

The first thing to be done is to sort and arrange a certain quantity of small glass tubes of different colors in the cavities of a thick molten disc, disposing them according to the object to be represented. This done, the tubes are inclosed between two layers of glass. To do this they begin by placing on one side of the disc which contains the tubes a layer of crystal, to which the tubes soon become attached. When this is done the disc is removed and the second layer of crystal is placed on the opposite side. The object being placed in the center between these two layers of glass thus soldered together, it becomes necessary to give the ball its hemispherical form, which is done when the crystal is again heated, by means of a concave spatula of moistened wood. It then only remains to anneal and to polish it on the wheels.

That a glass ornament being covered with a layer of hot glass, should receive no injury or change of color, may be easily understood from its extremely refractory nature; but it is not the same with objects in metal, such as watches barometers, etc., which a fair less degree of heat would oxidize or even entirely destroy. The mode of manufacture, therefore, of these latter objects is quite different from that of the first. It is easy to prove this. If we look at a paper weight, provided the interior be of glass, the upper and under part of the recipient will also be of glass. If we now examine a paper weight containing a watch or barometer, under the lower part of the ball will be found a piece of green cloth, the use of which is to keep in place the objects which, instead of only forming one body with the covering of glass which surrounds them, are only placed in a cavity made beforehand in the center of the half spherical ball. In a word, to take out the glass ornaments it would be necessary to break the paper weight, whilst to take out the others it would suffice to take off the cloth.

As for the paper weights in which are placed portraits, usually of a yellowish color, these progles are made of refractory earth, and many thus bear well a heat which often softens glass. Manufactured successively at Venice under the name of millefiori, and then in Bohemia, these paper weights have been carried to perfection only by French artists. The sole difficulty in their manufacture is in avoiding internal air bubbles, which would the more deform the objects, as any defect would be much increased by the thickness of the glass.—*Chicago Journal of Commerce.*

It is estimated that 1,900,000 persons are employed in manufacturing establishments in the United States, and that the number supported thereby is 10,000,000. Of this number, 640,000 are employed in the manufacture of iron, steel, and in mining ore and coal. The amount of capital employed in the manufacture of iron and steel is \$420,000,000.

The Debt Statement for August.

The most striking feature in the official statement of the public debt, says the *Evening Post*, is the very large decrease in the aggregate amount during the last month, \$17,034,124. Since March 1st, 1870, the current receipts of the Treasury have exceeded by \$69,004,001 the expenditures; and that amount has been applied to the reduction of the debt. This is at the rate of \$13,800,000 per month, or \$165,000,000 per annum; and making due allowance for the large receipts in the spring months, indicates a probable reduction of the debt at the rate of \$132,000,000 per annum so long as the present tax system lasts, and at the rate of nearly \$60,000,000 per annum after the remissions enacted by the last session of Congress shall take place.

Had the tariff been revised in the interest of the revenue, and not in that of the manufacturers of steel, woolen goods and thread, the present rate of reduction might have been maintained, while diminishing by one half the burden of taxation on the people; or, better still, more than four thousand of the articles now heavily taxed might have been made entirely free of duty, and the annual reduction of \$60,000,000 maintained, while the trade and industry of the nation would have revived so rapidly as to lead to much greater reductions of taxation within a few years, and still to pay off the entire debt before this generation of men shall pass away.

The amount of gold in the Treasury is \$102,930,206, less by \$9,845,843 than a month ago; but the amount of interest due and accrued has been diminished in July by \$15,667,661, while the certificates payable in coin on demand have increased only \$4,233,360, so that the gold reserve, the property of the government, is now \$30,470,355, or nearly two millions of dollars more than it was on July 1st.

The currency balance in the Treasury has been increased during the month from \$28,915,067 to \$38,068,623—a much larger sum than Mr. Boutwell has ever held in this form before, and more than five times as large as he held in April, or for the greater part of the year preceding. The object of this accumulation of paper money is doubtless to be ready to redeem the three per cent. certificates as fast as they can be presented under the new currency law. At present the prospect of their return in large amounts is distant, since there seems to be little demand for the new banks authorized by that act. But the fact that the Treasury has been able to take in and lay aside money at the rate of ten million dollars per month, without in any way disturbing the loan market, and that it can at any time pay out thirty millions of dollars without losing a fair working balance, is favorable to continued ease in money.

The *Journal of Applied Chemistry* is authority for the statement that the iron salts are among the most valuable of disinfectants. Metallic iron will also prevent water from becoming foul. It is well known that iron rusts in water chiefly at the expense of the free oxygen contained in it. If water be sealed up in a flask after the removal of the free oxygen a polished piece of iron will remain bright for an indefinite length of time. By putting iron filings into a cask of water stored for a long voyage, the usual bad smell will be prevented. So, also, the water in a vase with flowers will be less likely to smell badly if a few nails be put in than otherwise.

Military Strength of European Powers.

As, in the present crisis in European affairs everything bearing on the subject is of interest, we reproduce a summary of the remarks of M. Garnier Pages, one of the ablest and most influential of the Liberal orators of the Corps Legislatif. The occasion was a discussion on the army contingents bill, on June 30, just one day before the announcement of Prince Leopold's candidature for the throne of Spain. M. Pages said:

Nothing can be more instructive than a comparison of the different military organizations in Europe. I shall therefore make some brief observations on the subject.

Russia has a population of 78,000,000; the system is recruitment—often forced; the men serve fifteen years; the average effective is 697,000 men, and the expense 425,000,000f.

England has 31,000,000 souls, and the system there is voluntary enlistment, the active army at home is 127,000 men, and 64,000 in India, the whole with an expense of 357,000,000f, and with, in addition, 142,000 men of the militia.

Italy has 26,000,000 inhabitants; the effective is 167,000 men, but in case of war 500,000 may be called out; the cost is 130,000,000f.

Austria has learned an important lesson at Sadowa, and with a population of 36,000,000 has established an obligatory service on all citizens without distinction; in peace time her effective is 246,000 men, and her outlay 195,000,000f.

Bavaria has 50,000 men, at an expense of 35,000,000f.

I need not describe the Prussian system; you are aware that North Germany has 300,000 on a peace footing, and 957,000 for war; the cost is limited to 225,000,000f.

Switzerland, for 2,000,000 of souls, has 85,000 men for the active army, 50,000 reserve, and 65,000 landwehr, forming, at a critical moment, a force of 200,000 men, very easily assembled, at a cost of only 8,000,000f.

I shall now show that France makes a greater effort for her army, and spends more to produce an inferior result. Our active force is 400,000; the reserve, 400,000; the National Guard Mobile should be 550,000. Total, 1,350,000. And what is the cost? The ordinary budget for 1868 sets down 492,000,000f for the War Department, and 178,000,000f for the Marine; total, 600,000,000f; and 48,000,000f for military pensions, and the whole figure is 648,000,000f. Add to all this the interest that our wars have cost us, amounting to 120,000,000f of rente, and the total amounts to 768,000,000f; and if we estimate the loss of inactive arms at 240,000,000f, we shall find that we pay more than 1,000,000,000f for our military organization. Thus, while Austria and the Northern Confederation together have a military budget of 499,000,000f, France, for herself alone, expends much more. Surely there is matter here for serious reflection. The Prussian system would give us more men at a less cost.

In 1840, the silk product of the country was 60,000 pounds, worth \$250,000; in 1844, 400,000 pounds, worth \$1,500,000; in 1850, it was only 14,763 pounds. In 1860, the product of five States, including Pennsylvania, was 5,000,000. The business has increased steadily ever since. California is devoting great energy to it, and its silk-worm eggs are highly valued. Of \$214,900,000 raw silk produced annually, Asia is credited with \$141,000,000; Europe, \$73,480,000; Africa, \$220,000; Oceanica, \$120,000, and America, \$80,000.

WASHINGTON, July 27.—By direction of Secretary Boutwell an interesting statement has been prepared at the Treasury Department, showing in detail the receipts and expenditures of the Government, from the 30th of June, 1860, to the close of the last fiscal year. The aggregates are shown by the following table:

	Expenditures.	Receipts.
1860.....	\$63,025,789 34	\$55,976,833 89
1861.....	66,357,127 20	41,344,983 82
1862.....	474,744,781 22	51,935,720 76
1863.....	714,709,995 58	111,399,766 40
1864.....	855,334,087 86	260,623,717 44
1865.....	1,290,312,082 41	329,567,886 66
1866.....	520,809,416 99	560,250,353 90
1867.....	357,242,478 71	490,634,010 27
1868.....	337,340,284 86	405,638,083 32
1869.....	321,490,597 75	370,943,747 21
1870.....	292,117,269 31	408,831,372 42

Total...\$5,303,700,811 23 \$3,087,155,475 30

The public debt was in 1860 about \$100,000,000. It is now \$2,216,545,335 93. The following items show how this \$5,303,700,811 23 has been disposed of since the fiscal year commencing June 30, 1859:

For the executive, \$56,000,000; for the judiciary, about \$15,000,000; for the army and volunteers, \$1,140,632,060 94—\$328,000,000 of this having been expended in the year 1865. For the Quartermaster's supplies, engineer's and miscellaneous supplies of the War Department and army, \$2,146,776,896 53; for bounties from 1863 to 1870, \$98,208,000; for the navy, \$480,043,081 25; for pensions, naval and military, \$136,931,457 58, about \$2,130,622 53 of which was expended before the rebellion commenced; for the Indians, \$39,285,017 78; for interest on the public debt, \$851,850,713 29, of which \$3,177,314 62 was expended in 1860, and \$4,000,173 76 in 1861; for Congress, \$36,969,649 78; for public buildings, over \$17,000,000; for deficiencies in the Postal service, over 25,000,000, of which \$8,196,009 26 was expended in 1860, \$4,064,234 44 in 1861, and about \$4,950,000 in 1870; for improvement of rivers and harbors, nearly \$13,000,000, nearly \$11,000,000 of which has been expended since 1867; for foreign intercourse, over \$20,000,000, \$7,200,000 for Alaska being counted in this aggregate; for expenses of collecting the Customs revenue, \$52,591,811 93; for expenses of collecting the internal revenues since 1866, \$39,000,000. The balance, of over \$175,000,000, is charged to various miscellaneous expenses.

The Ironton, Portsmouth & Cincinnati Railroad, which was to connect our city with the Chesapeake & Ohio Railroad, has, it seems, come to grief before it, so to speak, came at all. The Engineer has been compelled to suspend the preliminary survey because there are no funds to pay him for his work. Hamilton county has failed to subscribe her proportion, and so have Brown and Clermont and other counties along the line. When the enterprise of a people gives out at so early a stage of a great public work, it is not worth while to indulge in any sanguine hope of its final completion. We do not know whether the fault is with the people or the managers, but we do know that if the counties through which it is proposed the road shall be built, from Ironton to Cincinnati, can not, or will not, pay for the preliminary survey, they will not be likely to get a road for some time to come. Probably the region would be a good one in which to organize a company to establish a line of Couestoga wagoos for communication with the outer world.

THE SALT PRODUCT OF THE SAGINAW VALLEY.—The salt product of the Saginaw Valley for the present year, is estimated at 600,000 barrels, a little more than last year and actual figures may slightly overrun this estimate. Early in the season an understanding was effected between the Saginaw and Bay Salt Company and the Onondaga Salt Company, of New York, through which the Western ports and cities should be supplied with salt, in such a manner as to avoid the crushing competition that has existed between these rival companies of territory of markets. The arrangement is made on the basis of the amount of salt made by each company last year. To all ports and markets west of and including Cleveland, the Onondaga Company is to ship four-sevenths and the Saginaw Company three-sevenths. The disposition of our salt this year, on a basis of 600,000 barrels, will be about as follows:

	Barrels
Cleveland.....	65,000
Toledo.....	65,000
Sandusky and Detroit.....	20,000
Chicago.....	300,000 to 350,000
Milwaukee.....	50,000 to 60,000
Mackinaw Grand Haven, Waukegan, Racine and Lake Michigan ports, bal- ance, say.....	40,000
	600,000

The new currency law, authorizing \$54,000,000 additional circulation apportions to the States and Territories named below, as follows:

Virginia.....	\$4,915,985
West Virginia.....	457,770
Illinois.....	1,079,572
Michigan.....	786,776
Wisconsin.....	2,117,939
Iowa.....	681,363
Kansas.....	174,712
Missouri.....	3,000,412
Kentucky.....	4,651,349
Tennessee.....	4,331,759
Louisiana.....	5,435,193
Mississippi.....	2,980,470
Nebraska.....	6,576
Georgia.....	4,681,728
North Carolina.....	4,098,628
South Carolina.....	4,216,838
Alabama.....	4,081,212
Oregon.....	161,273
Texas.....	2,032,194
Arkansas.....	1,455,519
Utah.....	58,332
California.....	1,717,388
Florida.....	516,442
Dacotah.....	15,441
New Mexico.....	277,339
Washington Territory.....	47,180

Total.....\$54,000,000

WORKING IN QUICKSANDS.—The sinking through the land and water at the Battersfield colliery, Bagilt, North Wales, by means of pneumatic power and diving-bell dresses, has been so far successful that the workmen have at last, at a depth of about thirty yards, got down to the solid stratum. The tubes have been taken out, and pumps for getting out the water are now being put down. Of the difficulties which have had to be encountered, some idea may be formed when it is stated that considerably more than a year was occupied in sinking to a depth of about twenty yards. The colliery will be about the largest in the kingdom, the shaft being no less than twenty feet clear in diameter.

Railroad Items.

—The Northern Pacific Railroad Company has agreed to make Duluth the sole terminus of that road for six years, and the Western Land Association has given the company one-half of all its property in and around Duluth. The Superior and Mississippi Railroad Company has given one-half of all its real estate, including the depot grounds and water frontage, in consideration thereof.

—Grading on the Baltimore & Potomac has been finished on the main line of the road from the Patapsco to below Marlboro. Ties are being delivered along the line, and it is probable that a considerable portion of the rail will be laid this fall.

—The Pullman Palace Car Company, organized in 1867, with a capital of \$1,000,000, has now increased it to \$8,000,000. It runs its cars over fifteen thousand miles of railway, and employs about three thousand men.

—Atmospheric brakes are now in operation on several of the Pittsburg, Ft. Wayne & Chicago Railway cars. Trains on which this brake is used can be stopped almost in an instant.

—The Alabama & Chattanooga Railway Company does its own express business, and is said to succeed admirably, and to tempt other companies to imitate its example.

—The "dead weight" of a railway train, in the way of engine, fuel, water, cars, etc., is from 1,300 to 1,500 lbs. for each passenger, even in a well filled train.

—The amount of railway bonds voted by the Michigan towns is \$4,072,275 80, of which \$361,400 has been issued to the companies.

—Between five and six hundred hands are at work on the line of the Laclede & Ft. Scott Railway, between Lebanon and Buffalo, Mo.

—All the conductors on the Erie are married men. No single man is employed in that capacity.

—A New York paper estimates that for the next few years 5,000 miles of railroad will be constructed on an average each year.

—Bayard Taylor complains that the finest scenery on the Union Pacific is defaced by the advertisements of quacks.

The London *Ironmonger* contains the following: We are running a great risk in England of being beaten by America in the manufacture of axes, shovels, hoes, and other implements of the kind. The Pittsburg steel, both cast and rolled, is fully up to the mark of the best English—in fact, to such a degree that it is not only supplanting our produce, but in every shape of tool it is being largely exported to the European continent. American bolts and hinges excel ours, and medium American cutlery of all kinds is cheaper and better than any manufactured here. We trust that our Sheffield houses will look to their laurels, and strive to maintain the superiority of make and world wide command of the trade for which they have hitherto been celebrated.

Progress on the Hoosac tunnel during July was as follows: East end, 123 feet; central shaft sunk 33 feet; west end 97 feet. The Deerfield river has been very dry through the month, affording insufficient power for full working of the machinery.

AMERICAN STEEL RAILS

The undersigned are now ready to contract for the delivery of RAILS made of

**BESSEMER or
PNEUMATIC STEEL,**

Wholly AMERICAN, and of the best quality.
PENNSYLVANIA STEEL CO.
424 Walnut St., PHILADELPHIA.
CAMBRIA IRON CO.,
400 Chesnut St., PHILADELPHIA.

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BOOTH'S DUPLEX, SAFETY, Steel and Iron Rail,

Now fully demonstrated to be the TRUE STEEL RAIL, we are now ready to negotiate with Railroad Companies for its adoption under such arrangements and suggestions as we will upon application by letter or in person make known to them. *Opening a new era in Railway economy hitherto unprecedented.* All communications must bear the signature of either the President, Vice-President, Superintendent or Engineer.

J. L. BOOTH & CO.,
Rochester, N. Y.

HAVEN & ALLEN,
72 Broadway, N. Y.

HARRISBURG FOUNDRY AND

MACHINE WORKS,
(Branch of Harrisburg Car Manufacturing Co.)
HARRISBURG, PENN.

MANUFACTURERS OF

MACHINISTS' TOOLS,

SUCH AS

Lathes, Planers, Shaping and Slotting Machines, Bolt Cutting and Nut Tapping Machines, &c.

W. T. HILDRUP, Treasurer.

Hawkins, Herthel & Burrall,
Civil & Mechanical Engineers;

BUILDERS OF

HERTHEL'S PATENT TRUSS,

And other Iron Bridges, Roofs and Turn Tables. Also

Howe's Patent Truss,

And other Timber Bridges, Roofs and Turn Tables. Corrugated Iron Doors, Shutters, and Iron Building Material generally. Contractors for Piling, Docking, and General Railroad Work.

88 Main St., Springfield Mass.

R. F. Hawkins. Geo. P. Herthel. W. H. Burrall.



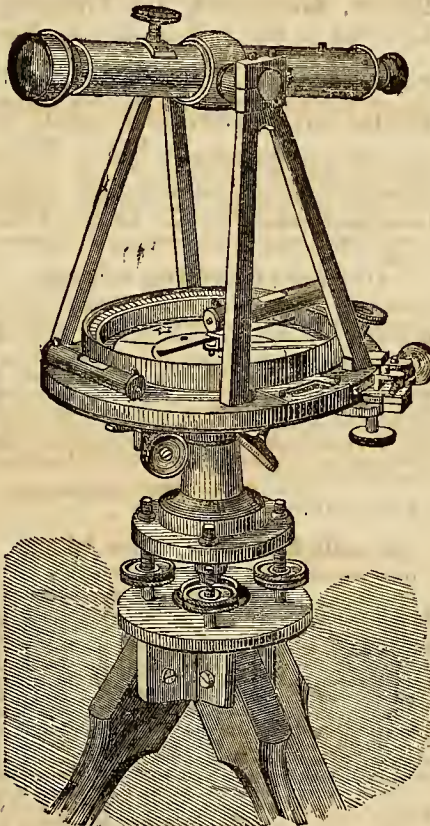
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**Le Van's
Improved Governor,**
WITH
BALANCE VALVE COMBINED.

Warranted to give entire satisfaction. One will be sent to any responsible party on 30 days' trial to be returned at our expense if not as represented. Price List and Photographs sent on application.

W. Barnet Le Van & Co.
S. E. cor. 24th and Wood Sts.,
Philadelphia.

T. F. RANDOLPH,



MANUFACTURER OF

MATHEMATICAL INSTRUMENTS

THEODOLITES TRANSITS. LEVELS.
DRAFTING INSTRUMENTS, &c.,

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Circulars sent free.
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EDWIN J. HORNER,

Successor to

McDANIEL & HORNER,



Locomotive and Railroad
CAR SPRING MANUFACTURER
Wilmington, Delaware

GRAND SCENERY! QUICKEST ROUTE

59 Miles in Distance Saved
Baltimore & Ohio R.R.

—TO—
BALTIMORE,
PHILADELPHIA,

NEW YORK, and
BOSTON,

WITH THE PRIVILEGE OF GOING TO
WASHINGTON

FREE!

NO CHANGE OF CARS

From Cincinnati or Columbus to **Baltimore** and but ONE CHANGE.
Philadelphia and New York.

Ask for TICKETS and BAGGAGE CHECKS via **Baltimore & Ohio R.R.**

J. L. WILSON, Master of Transportation.
L. M. COLL, General Ticket Agent.
J. B. GIBSON, General Western Passenger Agent.

JANUARY 1st, 1870.

Cincinnati to St. Louis Without Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois Central Railroad.

TRAINS RUN AS FOLLOWS:

St. Louis, Evansville and Cairo
Mail..... 7:45 A. M. 10:55 P. M.
Osgood Accommodation..... 3:10 P. M. 8:45 A. M.
Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.
C. E. FOLLET, Gen'l Ticket Ag't, St. Louis, Mo.

CHANGEABLE GAUGE CAR TRUCKS

As in use on the National Despatch Line of Cars, adapted to two or more gauges. For information apply to

The Lobdell Car Wheel, Tire & Machine Co.

Manufacturing Agents,

Wilmington, Delaware, or
CHAS. ROCKUS & CO, Boston, Mass.

2-12-9, 52

**THE LOBDELL
CAR-WHEEL, TIRE & MACHINE
COMPANY,**

WILMINGTON, DEL.

Established in 1836.

All kinds of Railroad Machinery

GEORGE G. LOBDELL, President.
P. N. BRENNAN, Treasurer.
WM. W. LOBDELL, Secretary

12-5-70, 52

ERIE RAILWAY.

1400 MILES under One Management. 860 MILES without Change of Coaches.

BROAD GAUGE, DOUBLE TRACK ROUTE

FOR—

NEW YORK, BOSTON,

Providence, Albany,

PITTSBURG, HARRISBURG

Philadelphia, Baltimore,

And Principal Points in

NEW YORK, NEW ENGLAND

—AND—

Pennsylvania.

This Railway extends from

CINCINNATI to NEW YORK, - 860 Miles.

CLEVELAND to NEW YORK, - 625 Miles.

DUNKIRK to NEW YORK, - 460 Miles.

BUFFALO to NEW YORK, - 423 Miles.

ROCHESTER to NEW YORK, - 385 Miles

AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth

and Hoadley Streets, by Columbus, O., time,

which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A.

M.; Urban., 10.29 A. M.; Gallon, 12.57 P. M.;

Mansfield, 1.40 P. M.; West Salem, 2.50 P.

M. (Dine). (Sleeping Coaches through to

New York); Akron, 4.26 P. M.; Ravenna,

5.10 P. M.; Meadville, 8.00 P. M. (Supper);

Susquehanna, 7.55 A. M. (Breakfast); Tur-

ner's, 1.40 P. M. (Dine); New York, 3.00 P.

M. Connects at Ravenna with Cleveland &

Pittsburg Railroad for Hudson and Cleve-

land; at Elmira for Williamsport and the

South; at Binghamton for Coopersown,

Albany and the celebrated summer resort,

Sharon Springs, and at New York with

afternoon trains and steamers for Boston

and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana,

1.25 A. M.; Gallon, 3.58 A. M.; Mansfield,

4.44 A. M.; West Salem, 5.59 A. M. (Bkfst);

Akron, 7.38 A. M.; Ravenna, 8.25 A. M.;

Meadville, 11.20 A. M. (Dine); Hornells-

ville, 6.19 P. M. (Supper); New York, 7.00

A. M. Connects at Mansfield with Pittsburg,

Ft. Wayne & Chicago Railway for Pittsburg,

Harrisburg, Philadelphia, &c.; at Meadville

with Franklin Branch for Oil City; at

Elmira with Northern Central Railway for

Harrisburg and the South, and at N. Y. with

morning trains for Boston and N. England

cities.

New and Improved Coaches of the style peculiar to the

Broad Gauge, arranged for both Day and Night Travel,

are attached to this train at Cincinnati and run through to

New York, forming the **Only Line** running through

860 Miles without Change.

Boston and New England Passengers,

with their Baggage, are transferred FREE

OF CHARGE in New York.

The Erie Railway Company has opened a new

Ferry from their Jersey City Depot to the foot of Twenty-

third Street, New York, thus enabling passengers to reach

the upper portion of the city without the expense and an-

noyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie

Railway is of the most picturesque and beautiful character.

Admirers of Nature's beauties, in a daylight journey over

this line, will find in its ever changing landscapes sub-

jects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cin-

cinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet

House, and foot of Broadway, (Spencer House Block),

and at all principal Ticket Offices in the South and

South-west.

W. B. SHATTUC,

General Southern Agent.

WM. R. BARK,

Gen'l. Pass'r Ag't

Best Route to St. Louis and Ch. cago**INDIANAPOLIS,****CINCINNATI****—AND—****LAFAYETTE RAILROAD**

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,**CAIRO,****CHICAGO,**

Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,

North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7:20 am	12:40 am
St. Louis and Springfield Express....	2:40 pm	7:35 am
*St. Louis and Springfield Express. 10:20 pm		3:42 pm
Lawrenceburg Accommodation.....	10:10 am	2:35 pm
Lawrenceburg Accommodation.....	4:30 pm	8:25 am

*The 10:20 pm. train will leave Sundays, but not on Sat-

urdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7:00 am	10:15 am
Chicago Express.....	6:50 pm	9:30 pm
Harrison Accommodation.....	5:30 pm	7:10 am

Through Tickets can be obtained at the Burnet House

Office, corner of Third and Vine; River Office, corner of

Walnut Street and River; and at Depot, corner of Plum

and Pearl Streets. The splendid Passenger Depot of the

I. & C. Railroad is about a mile nearer the business center

of the city than the Depot of any other railroad, and with-

in a few squares of the Postoffice and principal hotels and

Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway). 7:00 A. M.		6:30 P. M.
do do do 9:45 P. M.		7:00 A. M.
Toledo, Detroit & Canada..... 7:15 A. M.		10:25 P. M.
do do do 6:30 P. M.		7:00 A. M.
Lima Fort Wayne & Chicago... 7:15 A. M.		10:25 P. M.
do do do 2:30 P. M.		5:40 P. M.
do do do 6:30 P. M.		7:30 A. M.
Sandusky, Cleveland & Buffalo... 7:15 A. M.		5:40 P. M.
Springfield Accommodation... 2:30 P. M.		10:20 A. M.
Sandusky, Cleveland & Buffalo... 6:30 P. M.		10:20 A. M.
Muncie & Indianapolis... 7:15 A. M.		10:25 P. M.
do do do 5:40 P. M.		1:20 P. M.
Hamilton, Eaton & Richmond... 7:15 A. M.		10:25 P. M.
do do do 5:40 P. M.		10:20 A. M.
Hamilton Accommodation..... 9:30 A. M.		8:05 A. M.
do do do 6:50 A. M.		6:50 A. M.

Trains run SEVEN MINUTES FASTER than Cincin-

ati time.

For all information and through tickets, please apply at

the old office, south-east corner of Broadway and Front; Burn-

et House Office, corner Vine and Baker streets, and at the

respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

The Old And Reliable Route.

Through to Pittsburg without Change.

THE PITTSBURG, FORT WAYNE & CHICAGO RAIL-

ROAD, in connection with the Cincinnati, Hamilton &

Dayton, and Little Miami Railroads, still continue to trans-

port produce and merchandise between Cincinnati and

Pittsburg, Philadelphia, Baltimore, New York or Boston,

and all Eastern points with the greatest promptitude and

dispatch.

For Rates, Bills of Lading, or any information desired,

shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

Pittsburg, Pa.

LOUISVILLE & CINCINNATI**SHORT-LINE RAILROAD.**

Time only 5 hours

Fare Only \$3.50—Transfer from Hotel or

Residence to Depot, in Covington, Free.

THE SHORTEST ALL-RAIL ROUTE TO

Louisville, Nashville, Memphis, New

Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Louisville Mail.....	7:20 A. M.	9:05 A. M.
Louisville Fast Line.....	1:20 P. M.	11:15 A. M.
Louisville Express.....	5:00 P. M.	8:45 P. M.
Louisville Night Express.....	11:15 P. M.	5:00 A. M.

The Low Fare Season and Commutation Tickets, good on

the Walton Accommodation, offer great inducements to the

citizens of Cincinnati and Covington who wish to pur-

chase country residences or small farms for gardening.

This train leaves late in the afternoon, and gives early

next morning, giving all day to attend to business. For

further information as to routes, low fare, &c., please apply

at No. 1 Burnet House, or Depot, in Covington, Ky.

SAM'L GILL, Gen'l Sup't. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Lib-

erty st., connects at Hampton Junction with the Dela-

ware, Lackawanna, and Western Railroad, and at Esaton

with the Lehigh Valley Railroad, and its connections,

forming a direct line to Pittsburg and the West, without

change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago,

Cincinnati, St. Louis, etc., with but one change of cars.

Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as

follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk,

Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe

&c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg

Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch

Chunk, Wilkesbarre, Reading, Columbia, Lancaster,

Ephrata, Luzitz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk

and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the princi-

pal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and

Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for

Easton, Allentown, Harrisburg, and the West without

change of cars to Cincinnati or Chicago, and but one

change to St. Louis. Connects at Harrisburg for Erie and

the Oil Regions. Connects at Junction for Stroudsburg,

Water Gap, Scranton, &c. Connects at Phillipsburg for

Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Satur-

days,) for Easton, Bethlehem, Allentown, Reading, Harris-

burg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars

to Pittsburg and Chicago. Connects at Junction with

Delaware, Lackawanna and Western Railroad for all sta-

tions to Scranton. This train will be run to Easton on

Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton

Allentown, Reading, Harrisburg, Pittsburg, and the West

—connects at Harrisburg with train for Williamsport, Erie

&c.

Sleeping cars through from Jersey City to Pittsburg

every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15

8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00

3:00, 3:30, 4:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25,

7:00, 7:2, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the

Central Railroad of New Jersey, foot of Liberty st., N. Y.,

at No. 1 Astor House; Nos. 254, 271, 52

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON,
W. A. MUNSELL, Associate Editor.

CINCINNATI, THURSDAY SEPTEMBER, 1, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
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" " six months.....	55 00
" " per annum.....	110 00
" page, single insertion.....	25 00
" " per month.....	40 00
" " six months.....	135 00
" " per annum.....	210 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Props'rs.

The Mines and Future of Sunday Creek Valley.

The mines, where are they? Only three or four openings in that immense bed of coal—and none at all in the iron—have been made. If this immense mass of coal and iron is to be made profitable to the country and mankind, labor and capital must be applied to them. Then the results will in future be attained, as they are now on the Clyde, in the employment of tens of thousands of work people, of tens of millions of capital, and of large profits to all concerned. The great thing, then, is to introduce capital and begin furnaces, railroads and factories, in which all this wealth of nature may be employed to advantage.

Let us now look at some of the facts and prospects connected with this region. In our last paper we noticed the Atlantic & Erie Railroad, whose surveyed route passes through Sunday creek valley, and must, therefore, be the outlet of its products, if those products are ever brought forth. We mentioned that two weeks since, this new road was put under contract from Bucyrus to Toledo, a distance of 65 miles, and making in all 184 miles now under contract. The contractors are B. McDonald & Co., and the engineers are now locating the road. So far as we know, and have reason to believe, this work will go on, and be the means of developing this heretofore hidden region. We have already de-

scribed the "great vein," as it is called, on Sunday creek, 12 foot vein, and which we verified by actual measurement to be so. There are within a few miles three veins of coal, respectively of 4 feet, 6 feet, and 12 feet, either one of which is sufficient for all manufacturing purposes during the next thousand years. But some persons, jealous of the attention this section of country is now receiving, say that the 6 foot vein is not an independent vein, but a continuance of the 12 foot vein. What of it? As we saw these all at a very few miles apart, we are compelled to believe them three distinct veins, one of which is not equaled in any other place, and all of which are workable. A 4 foot vein of coal is workable and profitable; and when those veins are so near horizontal, and near the surface, the cost of getting out the coal is almost nothing. As to the 12 foot vein, that is indisputable and undisputed. That vein is nearly horizontal, and for two or three miles almost level with the road. This fact is enough, and when we add to it that this coal is of the very best quality west of the Alleghanies, we have said enough to show that no coal region can surpass it. The same 12 foot vein reappears at Straitsville, some 8 or 10 miles west, on the west branch of Sunday creek. Heretofore, all that the public knew was what was set forth in the Straitsville interests. There was a railroad incorporation, and the stock we believe actually subscribed, to make a railroad from Straitsville to Newark, but from some cause (of which we know nothing), it fell through. We believe parties are still engaged in getting up that enterprise. In speaking of the vast deposits of coal in Sunday creek valley we do not pretend to say that there is not an abundance of coal through southern Ohio, but this is the point of our remarks on that subject (and we challenge contradiction), that the quality of the coal, and the ease and cheapness of getting it out, are unsurpassed, and indeed not equaled, any where. It is the Brier hill coal, and it is twelve feet thick, cropping out in the valley, where no artificial works are necessary, and none of the expense required, in nearly all other mines. Any man of sense can see this, and see that in the north-west this will be the cheapest coal which can be got.

Let us now notice the iron. We saw iron on every mile we rode through, but we do not pretend to know its exact quality and value; neither can a geologist tell that till he analyzes it. We know three facts: 1. That there is an abundance of iron there; 2. That this very iron is now being carried to Louisville to use in the iron works there; and 3. That the southern part of Perry county is in the very heart of the Iron belt. Let us look at the last fact. If we take a map and ruler, and draw a line through the western furnaces of Scioto, Vinton and Hocking counties on one side, and then draw another line through

the eastern furnaces of those counties, we shall find that the south half of Perry county is between these lines continued. Some iron, though little, has been found in the north half of Athens county. It is, therefore, absolutely certain that the valley of Sunday creek is in the midst of the iron region, which extends from the Scioto to the lake, through Mahoning county. We say, further, that in Mahoning county, where the Brier hill coal is found, beds of the best iron have also been found and worked. Hence, by analogy, if we had no other means of knowing, iron of the best quality should be found in Sunday creek valley, and this corresponds with our own observation. But at this point comes the practical question, Will this iron be worked? Will furnaces be established? We are told that a company is now preparing to build a large furnace there. A difficulty arose before the minds of practical men, which a bystander would not have thought of. Is there water enough? A modern furnace, of great size, requires a large amount of water, and wants it all the while. One would think that Sunday creek would furnish all the water. So it will, for nine months in the year, but our streams are dry two or three months in the year, and a furnace can not afford to stop that time. But this difficulty is entirely remedied. We saw, ourselves, near the point where the furnace is intended to be erected, a well dug and opened. This well furnished a large amount of water. Further, a little expense in dams will furnish ample supplies of water from reservoirs. There will be water enough. A company (as we said) is now preparing to erect an extensive furnace about 12 miles south of New Lexington, in the valley of the creek. We are told that this furnace will be: Across the border, 15 feet; height, 65 to 70 feet, stack with Beck's improved hot blast; engine, 36 inches bore, 6 foot stroke; blowing cylinder, 8 foot bore, 6 feet thick.

This engine will be sufficient for two furnaces. Such a furnace as this will make more iron than any one we now have. We hope the projectors may be able to carry through their plan, for if they do the example will be followed, and Sunday creek valley fully developed. If the railroad should be made from Chauncey to New Lexington (having lines of railroad at each extremity), these vast mineral deposits will be fully developed, even if the road is not made beyond. The results will be most auspicious to the whole of south-eastern Ohio. Furnaces and factories will arise, towns and cities be built, and industry and prosperity smile upon all around. Capital can do no better work than in employing labor to develop the resources of the country. Why should we not do what is done on the Clyde, set a new industry in motion, give employment to laborers, build houses, and fill the land with the joyful voices of successful industry? Why not?

A CHARMING BOOK—Foremost among those old stories which have served to excite the mirth of successive generations of school children stands the time-honored tale of the Scotchman who was found by a friend pouring over the pages of the dictionary, and on being asked how he liked it, replied, "Oh, weel the stories are braw, but they are unco short."

But the dictionary of to-day is as unlike that of twenty years ago as the butterfly is unlike the worm. It has burst from its former dull respectability into the glory of a picture gallery. In learning, in extent, in everything it has made a vast advance; but with its *illustrations* it enters a new sphere of attractiveness.

A relative of mine, who prides himself upon his fine collection of books, drove up to my door the other day. I asked him to step into the "library." His eyes opened a little, I fancied, with an amused look, as if he wondered whether I, with my meagre salary, was going to set up a rivalry with him.

He entered the room, looked around with some apparent surprise, and said, "Library?" "Certainly," said I. "Where are the books?" "Here," said I, pointing to "Webster," which stood proudly on a shelf, alone, for the reason that I had nothing to place beside it. "Many volumes in one." "What have you on botany?" said he. "Webster," I replied, "with illustrations of all the various plants." "What have you on mechanics?" "Webster," said I, and I turned to the engraving of the turbine wheel, and of various other machines. "Well" said he, "you have, to be sure, in Webster, a smattering of almost every thing, but I have you now. Let's see your authorities on mythology." I turned the pages of Webster and showed him the pictures of the noted characters of mythology, and sketches of their lives. "I believe, after all," said he laughing, "that you have a library."

Whenever, now, I see a friend out shopping, I ask him what he wants. If it is a picture book for Edward, I direct his attention to Webster. If it is an encyclopedia for Uncle James, I point him to Webster. If it is something to please an invalid, I recommend Webster. If it is a Christmas present for his wife, I urge him to get Webster, Webster unbridged and illustrated. It is a never failing delight to every one.—*Cor. Christ Era.*

There are 5,000 newspapers in the United States, or one to every 7,000 of the inhabitants; 1,260 in Great Britain and 1,640 in France, or one to every 23,000; 700 in Prussia, or one to every 26,000; 506 in Italy, or one to every 44,000; 365 in Austria, or one to every 105,000; 300 in Switzerland, or one to every 8,000; 275 in Belgium, or one to every 15,930; 225 in Holland, or one to every 16,000; 200 in Russia, or only one to every 75,000; 150 in Norway and Sweden, or one to every 36,000; 100 in Denmark, or one to every 20,000; and 100 in Turkey, or one to every 300,000.

Northern Pacific Railroad.

[From the Duluth Minnesotian, August 13.]

A party consisting of the following persons arrived at Duluth on the 6th inst.: Gov. Gregory Smith, President of the Northern Pacific Railroad; T. H. Canfield, President of the Northern Pacific Land Association; Dr. S. W. Thayer, Geo. G. Smith, E. Putnam, T. H. Hornley, all of Vermont; L. Millis, of Boston; Senator Wm. Windom, of Minn. (N. P. R. R. Director); and Gen. Ira Spaulding, Chief Eng. of Minn. Div.; Wm. L. Banning, Pres. of the L. S. & M. R. R., and S. M. Felton, of Philadelphia, Vice Pres., accompanied the party, on business mutual to the two railroads and associations.

The N. P. R. R. having, by the recent Duluth terminus contract, acquired one-half of the Lake Superior & Mississippi Railroad Company's water front on the outside and inside harbors, and one-half its depot grounds; and its Land Association having also, under the same contract, become possessed of one-half of all the immense property interest of the Western Land Association in and around Duluth and at the Dalles of the St. Louis; the examination of these several properties and the ascertaining of their location, and the deciding of the best points for using them available in the interests of the road and of its proprietors, naturally became the first business of the party.

The important question of docks to be used during the construction, and after the construction of the N. P. R. R., was also thoroughly mooted. It was plainly seen, that the present dock, constructed within the break-water by the L. S. & M. R. R., would in a little while be required entirely by the business of that road; that the Citizen's Dock was entirely needed by our city's local wants. The conclusion finally arrived at was that the N. P. R. R. would proceed, as soon as Engineer Spaulding could prepare the plans, to construct three or four docks on the lake front of Minnesota point, for the accommodation exclusively of their own business—these to be built upon their own share of the lake front as just transferred to them.

We understand that the construction of these docks will commence at the offset in the present docks, 100 feet south of the freight house, and that the space between the track and outside line of the present dockage will be filled up with substantial cribs, running southwardly clear to the base of the point; where an oblong dock will be projected out at right angles into the lake, to be 100 feet wide, and 300 feet long; and that then, at intervals of about 200 feet, similar projecting piers and docks, to the number of three or four, will be constructed, until the whole space down to the Citizen's dock shall be occupied by the Northern Pacific dockage.

The dredges are to be used in the dockage construction, first to deepen the water in-shore, and then between the piers; which procedure will necessitate the lengthening of the break-water to preserve the interspaces from being filled up by the "shingle" wash of our North-easters.

These docks, and the warehouses indispensable to their proper use, will involve an expenditure in our city of \$200,000 or \$300,000, besides the cost of continuing the break-water.

From Governor Smith we learned that the Northern Pacific line is already surveyed and located from the Dalles to the Mississippi river; that 1,200 men were already at work constructing the road; that 500 more would

be put on it this week; and that it was confidently expected that by the 1st of September a force of 5,000 men would be engaged. That the Trans-Mississippi division had already 10 miles beyond the river located for the working parties; that the surveys were about completed to the Savannas of the Red river, through the Leaf river highlands or mountains; and that by the time their party returned from their trip to the Red river, where a principal business was to determine the point for crossing that river (and consequently the site of the important town on its east bank), he expected the entire line of the track would be located between the St. Louis and the Red river; and that the contractors were ready to occupy it with energy and force.

Governor Smith stated that 15,000 tons of the iron for the Northern Pacific had already been purchased at Danville, Pottsville, Pittsburgh, and Johnstown, Penn., and was now on the way to be loaded at Duluth. [We may add, that the Meteor, on Thursday, brought another locomotive; that on Wednesday, the schooner Cromwell, from Erie, landed 500 tons of this iron; and that the schooner Twilight, from the same port, is daily expected with 500 tons more.]

We learned from Governor Smith, also, that the Pacific coast end of the road was being attended to—no less than six parties of engineers being now engaged in surveying and exploring to determine the line between the ocean and the Rocky mountains.

Railroads as a Military Power.

If the war between France and Prussia shall go on to the "utterance," and involve the other great powers in it, there will be exhibited in central and western Europe a far greater power than has ever been used by civilized men on that continent in any of the conflicts which have taken place heretofore. So great has been the change in the character of military affairs since the introduction of railroads, and the many improvements in machinery of the present age, that we may well doubt the propriety of the word "fighting" in connection with military operations. The work of a campaign is mainly a contest of engineering skill, and in this country we have long recognized the fact that persons who have had a thorough military education are best qualified for constructing and working railroads. Formerly the most wearying and wearing work which an army had to perform was that of marching and transporting supplies, and frequently two greatly fatigued armies after forced marches met to contend for the possession of some important strategic point, but now large bodies of troops and vast amounts of provisions and provender are conveyed with great celerity and without fatigue to the scenes of conflict upon railroads, and battles are decided by the operations of those

"Huge engines, whose rude throats
The immortal Jove's dread cannons counterfeit."

War, as conducted at present, is a contest between nations, each of which strives to bring into operation the greatest available amount of mechanical power and engineering skill. Iron in its various uses, from the delicate needle which explodes the charge of a rifle to the huge columbiads which project masses of iron weighing hundreds of pounds, and the locomotive drawing the ponderous military machinery over the iron rails, is the grand agent of destruction, and the fabled conflicts of the Titans of mythology become tame in view of the mighty forces exerted by

steam and the explosive articles used in the warfare of the present day. That most wonderful concomitant of railroads, the telegraph wire, also performs an important part in the great work of destruction, and the tendency of the introduction of all the discoveries of science and the inventions of genius into military affairs is to shorten the time of a war. The expense is enormous. Our four years of civil conflict, it is estimated, involved destruction of property amounting to over \$9,000,000,000, besides the lives or limbs of probably a million of the most robust men.

For years past France and Prussia have been striving to gain superiority of power, and if the war be not checked the destruction which will result from it will be appalling.

The influence of railroads in promoting the productive power of the industry of nations in time of peace is commensurate with the aid which they give to the destructive forces used in time of war, and when we consider what an immense amount of capital will be destroyed by the fierce struggle between the two most warlike nations in Europe, we may form some idea of the folly of those rulers who, to gratify a vain ambition, made such sacrifices of property and the lives of people over whom they have authority.

It would be instructive to calculate the amount of capital and the improvement which could be accomplished by its judicious use, which will be devoted to the fearful conflict resulting from the determination of an emperor to resent a presumed insult from a rival monarch. Much hostility has been shown in this country to the large appropriations of land and bonds made by the Government for the construction of great roads, but surely this is a better use of public property than to devote it to the devastating purposes of war. —*The Underwriter.*

Compressed Air as a Motor for Subterranean Railways.

[Read before the American Institute of Civil Engineers, by J. Dutton Steele, C. E.]

It is scarcely necessary for me to state that compressed air may be used in all respects as steam, and worked in the same engines; that its chief characteristics are perfect ventilation and cleanliness, and that it may be carried in pipes long distances without loss from condensation and similar causes, to which steam is liable. At Mont Cenis the air pipes must be as much as five miles in length, and the loss of pressure is not such as to impair the working of the drills, but I am without accurate information as to its extent. At Hoosac they are one and a half miles long, and the loss is two pounds to the square inch. At Nesquehoning they are one-third of a mile in length, and there is no appreciable loss of pressure. In all these cases, the air is worked at about fifty pounds per square inch, and the difference in pressure at the steam valves when the power is generated, and the air after it is compressed, may be taken at about ten per cent. when the best compressors are used. It will then be seen that the loss of power from the friction of the compressing machinery, and from the movement of air in the pipes, is not of a very serious character, and, if the pipes are tight the pressure is well maintained while the machinery is standing.

With this brief reference to the leading characteristics of compressed air as a motor, I will proceed to consider its possible application to subterranean railways; and in doing so will assume as a basis for discussion that

we have a double track railway ten miles in length, with moderate curvature and reasonable grades, and an air pipe along its center of ten or twelve inches in diameter, with compressing machinery at either end driven by steam, of sufficient capacity to maintain a pressure in the pipes of any given standard.

Let us also assume that we have an endless wire rope passing along the center of each track, supported upon pulleys, and that it can be kept tight; and to compensate for its expansion and contraction, by changes of temperature, that it is passed around movable pulleys of large diameter at stated intervals, say every half mile. These durable pulleys may be arranged in vertical planes, so that one of each pair may move in its pedestal, and be weighted to take up the slack, while those in the top, which receive the rope at the level of the rails, are fixed upon their axes and provided with cranks for the application of power. I would next propose that at each of these main pulley stations, a stationary engine be placed to move them; each engine drawing its power from the air main in the center of the road. We should then have a drawing rope moved by twenty stationary engines distributed along the line, acting in unison, connected by telegraph signals, and working under the same pressure.

There is no doubt as to the unity of action in such engines: their connection by means of the drawing rope would be perfect, and their speed would be regulated by governors; they would require but little attention, and their exhaust would furnish the most perfect ventilation. If it is conceded that we may thus obtain a satisfactory motion in air-drawing ropes, either one continuous rope, or of ropes in sections (and I apprehend either is practicable), it only remains to transfer that motion to the cars.

In this connection, and in explanation of the principle in view, I would invite your attention to the new tramways now building in Europe for the transportation of ore and fuel in the mining and manufacturing districts. They consist of endless wire ropes supported upon pulleys, which are fixed to strong posts and elevated more or less above the surface, with the moving power at the end; upon these wire ropes, boxes or cars are suspended at intervals, which contain the load, and which move with the rope, and are passed without difficulty over the pulleys, the opposite rope taking back the empty cars.

Many of these wire tramways are now in use, some of them as much as four miles in length, and so satisfactory in their operation that as much as one hundred miles are said to be under construction in England.

It will be observed that the light of the suspended load produces the necessary friction for transmitting the motion of the rope to the cars, and that they are passed with ease over the pulleys. The rope, as proposed for a subterranean railway, is in a better position for such use than in the wire tramway, and if it is possible to make use of the load, as a means of transmitting motion to the cars in the latter, there should be no difficulty in doing the same thing in the former. Let us then suppose brakes dropped from the cars upon the driving ropes, so as to transfer only so much of the weight of the cars to the rope as may be necessary to communicate the motion, we would then have, by the use of the brakes on the rope and brakes upon the wheels, the means of stopping and starting the car at pleasure. The grades upon which such a system may be worked, will be about the same as with locomotives; and the ad-

vantage of air over steam as a motor will be found in its perfect ventilation and cleanliness; the nearly uniform pressure under which the several engines can be worked, and the distribution along the line of the power which is generated at the ends. But the air in the mains may be used for other purposes, with profit and advantage, such as driving printing presses and other light machinery, to aid the industry of large cities, and, where ever used, pure air and a reduction of the liability to fire will be the result.

In submitting these general views, I have avoided as much as possible mechanical details, which those who may take an interest in the subject will have no difficulty in supplying. They are speculations as to growing wants in advancing cities, and if they aid in ever so small a degree in giving direction to the stronger mental currents which these wants will attract, the writer will be compensated for the little thought he has given to the subject.

Metaline.

The importance of reducing the friction in the moving parts of machinery to a minimum, or of banishing it altogether, has at all times been fully recognized, and has ever commanded the best attention of the engineer. Attempts innumerable have been made to get rid of this great evil, and thus promote the economy of the steam engine. Could we produce a material for journal-boxes and other rubbing surfaces, by which the friction in all parts of a machine would be reduced to *nil*, no one will deny that a great triumph would be achieved. We are not going absolutely to assert that this has been effected, but we hope to show that something has been done towards it, which looks like a very near solution of the question of friction as far as regards the practical working of machinery. This conviction has been brought home to us by a recent inspection of a new substance to which the name of "metaline" has been given, and which is used in bearings of all kinds in machinery.

A word here in regard to ordinary machinery may assist us in explaining the working of this peculiar and wonderful material. Experience teaches us that the better proportion we give to box and journal, and the smoother and nearer perfect we make our bearing surfaces, the less friction is produced by their working and the less lubrication is required, but we have never, until now, known of an instance where this has been carried so far that there was no necessity for any lubrication whatever. Surface of iron, steel, brass, gun-metal, or any material used for journals and boxes can not be made to run in actual contact with each other without cutting, no matter how well proportioned and finished they may be. The finest surfaces, when examined under a microscope, are shown to be a succession of hills and valleys, (if we may be allowed a geographical term in a mechanical explanation), and when two of these surfaces are rubbed against each other under pressure, these inequalities, however small, will interlock and tear each other to pieces. Where bearings are properly lubricated, the metal surfaces are entirely separated, and they can not come in contact without this interlocking and tearing, commonly called "cutting." In some instances where bearings have been made hard and very highly finished, only a small amount of lubrication has been found necessary, but in no instance until now has the necessity been entirely obviated. Har-

dened bearings, highly finished, besides being very expensive at first, require very careful watching, as the damage is sometimes very great if they are neglected and allowed to "run dry."

Metaline bearings "run dry" from the start, and no amount of heat produced by friction can make it bind or cut; it commences its action immediately upon the surface of the journal, guide, or other bearing, at the point where the mechanic left off, no matter how well he may have done his work, and continues to improve the surface by filling up the inequalities, and in a short time arrives at a degree of perfection unattainable by mechanical skill. A practical illustration of this may be seen in the guides of the little engine running at the offices of the Metaline Company, at No. 1 High Holborn, where a mirror-like polish has been made upon the ordinary cast iron without the slightest indication of wear. The surfaces of all bearings running on metaline have this same appearance after a short time, and seem to improve constantly. If in the course of time these surfaces become perfect, or as near it as is possible, on account of the atomic structure of metals, then will friction between them have been reduced to the absolute minimum. We do not know that as much as this is claimed for metaline, but a practical result is claimed and clearly proved in many kinds of machinery, both in the United States and in England, and if the expectations of those having the matter in hand are realized, it is destined to play a most important part in future mechanics. Are our steamships—relieved of the dangers attending "hot journals"—going to be enabled to cross the Atlantic in four or five days, and our railways to increase their speed in the same proportion—who can tell?

Although metaline has only recently been introduced in England, great care has been taken to give it a good trial, in order that it might be placed before the public with its qualifications duly guaranteed by practical use. We may, therefore, mention that it has been on trial for about a year in America, and is now just beginning to be worked in the market, and has been working in a number of engines, shaft bearings, paper-mill machinery, &c., for the past three or four months in England—in all cases with perfect success. It has also been working for seven months in all of the bearings of a 6-horse power horizontal engine on the premises of the Foreign Metaline Company in High Holborn. An inspection of this engine showed that the bearings worked easily and well, the shafting at the points of bearing that a white handkerchief passed around it was not in the least soiled. We ought to add that a series of tests are now being made by some of our leading engineering firms, the results of which, when completed, we propose to lay before our readers. Such reports, authenticated by firms of the highest reputation, will fully convince the public of the very great importance of the new material.

Metaline is made from several substances—animal, vegetable and mineral—subjected to very great pressure in manufacture, and made into discs of several sizes, which are inserted into brasses or journals in holes of a size corresponding to the discs. At present, many varieties are made intended to be adapted to different circumstances, regard being paid to weight, speed, pressure, &c. These variations will be reduced in number when metaline is placed before the public as a merchantable article, the present object of the inventor being to learn by actual test how cheaply a certain

variety may answer its purpose in various places. The work is necessarily slow, but we predict that if all the tests now being made, and to be made, are successful, and we see no reason to doubt it judging from what we have seen and know of this material, it will not be long before metaline will be generally looked upon as one of the most practically valuable inventions of the day, so far as the mechanical world is concerned. Our readers will do well to visit the offices of the Metaline Company and see for themselves and learn from the gentlemen in charge more of the details in connection with this important invention than we are at liberty at present to make public. We can confidently say that they will see the practical working of an invention which we believe is destined to play a most important part in the future of the mechanical world.—*Mechanic's Magazine*.

Successful Test of a Novel Process in England.

Herapath's *Railway Journal* of July 16th, gives a description of experiments on the system of telegraphing invented by Signor Guattari, which substitutes atmospheric air compressed in a reservoir for the electric battery, and tubes filled with air for conducting wires. The apparatus consists of a reservoir of compressed atmospheric air, regulated so as to provide the requisite force or velocity with which signals are to be sent through tubes from one place to another. Vulcanized india rubber tubing about half an inch diameter, said to be a mile in length, coiled round a drum, was attached to the reservoir at one end, and to another apparatus at the other end of the tube to receive and print the signals as given from the reservoir or battery end of the tube. The tube (of any suitable metal), is provided with a movable vent, by which more or less force can be given to the current of air by which the signal writing or printing mechanism is actuated. The signals are given by pressing a certain number of times on a piston, by which pulsations are given to the air in the pipe or tube and transmitted through a valve to a lever connected with the writing apparatus, marking on a moving strip of white paper the impulses given at the reservoir end of the tube. As the signals are given at one end of the tube, they are immediately printed at the other end in a similar manner to Morse's instrument.

An indicator shows the force of the current of air passing through the transmitting tube or pipe, as the case may be; and similar indicators are placed near each end of the communication. Several messages were sent through the tubes and printed at the other end. A long conversation ensued as to the velocity of the messages and the capability of the apparatus for various purposes. It was inquired on the part of the post office authorities how many words could be sent in a minute by the atmospheric telegraph? It was stated from 20 to 24 words could be sent by the present apparatus, the greater portion of which had been made by the inventor, and therefore its working was capable of being greatly facilitated and improved by a more skillful workman, so that he was confident that at least quite as many words could be telegraphed by the Guattari system as by the electric telegraph.

A naval apparatus was also worked showing how signals could be given to five different departments in a war steamer, to the engine room, the powder magazine, the steering, &c.,

and that orders had been given for its adoption in the Italian navy.

The mode of telegraphing to one or more stations without the aid of the transmitting machine or the necessity of the sender being confined to any one point was shown.

Signor Guattari stated that his system was more economical and simple to construct and work than the electric telegraph; that it was free from atmospheric influences which so materially disturbed the electric telegraph during storms, and would not be so subject to accidents. It was calculated that the machinery and instruments could be provided and maintained at half the cost of those required for the electric system. There were no batteries to be renewed at considerable expense; and he maintained that any result attainable in the electric was equally attainable by using the Guattari system.

There seemed to be no doubt from the experiments that this system of telegraph would be effective for moderate distances, for large establishments, ships and towns, but that more extended experiments would be requisite to prove that it would be equally as efficient and certain as the electric telegraph for very long distances.

Carbolic Acid.

Carbolic acid is prepared by treating what was called the light oils (*benzines*) from the distillation of coal with dilute alkalis, and carefully distilling the products which are heavier than water, the alkali being previously neutralized by muriatic acid. It is seldom found pure, it having more or less of cresylic acid in it, and often other closely related bodies. Carbolic acid is a solid at ordinary temperature, melting at 106° Fahrenheit, and is soluble in twenty parts of water; is a powerful antiseptic and disinfectant, preventing putrefaction and fermentation. Its whole effect is due on its arresting change. It is simply a preservative. As an antiseptic, it prevents change in the materials. As a disinfectant, it accomplishes the result by the same means—that is, kills the spores, if malaria consists of such, or arrests chemical change if malaria is a putrescent material. Carbolic acid is a powerful poison. Every one had known that creosote is poisonous, and carbolic acid is only a new name for an old, well known material, only less crude. Creosote will do all that is claimed for carbolic acid.

It is an active poison, acting directly on the nervous system, and may cause death; indeed death has ensued from its application to an aching tooth. In the Glasgow Royal Infirmary the records show that when dressings in amputations and compound fractures contained no carbolic acid, one case in four and a quarter died; with carbolic acid in the dressings, one in three died, showing that the use of carbolic acid was positively injurious. It coagulates the vital fluids of the body, and of course stops vital action. In the hands of skillful physicians carbolic acid is susceptible of important uses; but for family use it is no more appropriate than arsenic or corrosive sublimate.

Its application, when not very much diluted, produces effects very similar to that of burns, blistering the skin and producing a sore that can be cured by the treatment that would cure a burn. It is offered the public in all forms, as soaps, washes, salve, and also as a medicine for various diseases, empirics taking advantage of its popularity to render it available

for their profit. That it is for many purposes very useful is not to be denied, but it is very evident that it should be used with caution and care. We have used these carbolic acids and soaps upon our own hands and face, and carbolic acid for disinfecting purposes, and recommend it. Our article is not designed to deter any one from its use as a disinfecting agent, but to give people who use it the knowledge of its properties they ought to possess.—*Prof. Darby, in Am. Grocer.*

PRODUCTION OF LUMBER ON THE PACIFIC COAST.—We copy from the *San Francisco Alta* of the 9th ult:

A correspondent, over the signature of "Lumber Dealer," sends us the following figures of the production of lumber in the large mills of Puget sound, the Columbia river, and the coast of California, as obtained by reference to the record kept at the request of the lumber dealers of this city.

One hundred and forty-nine million feet of lumber, of which 15,000,000 was dressed; 91,000,000 feet redwood lumber, of which 36,000,000 feet was dressed; 2,000,000 feet pickets, dressed and undressed; 4,500,000 feet white cedar; 126,000 feet maple; 177,000 feet oak; 38,000,000 feet laths; 50,000,000 feet shingles.

In addition to the above, 20,000,000 feet was exported direct from the mills to foreign ports, making in all 266,800,000 feet, besides laths and shingles.

He says: "We have no reliable statements of the amount of lumber manufactured at the many mills located in the mountains east of Sacramento, none of which comes to this market, other than the sugar pine, but it is all consumed in Sacramento, Marysville, Stockton, and the many mining towns and villages scattered through the interior portion of California. From long experience in the lumber business I should estimate the yearly productions from these various sources at not less than 40,000,000 feet, which is additional to the first estimate. The amount of fir, or spruce, which is manufactured at Humboldt, will exceed 6,000,000 feet yearly. This is embraced in the sum total, as it comes under the head of pine lumber; did not consider it necessary to particularize. The manufacture of laurel lumber is beginning to attract much attention, and as it is a timber growing only in certain localities, and that not extensive, it should be preserved with the utmost care, as at the best it will be but a few years before this, one of the most beautiful woods of California in use, will become extinct."

It is reported that many of the vessels of the French navy are to be fitted up with an apparatus intended to illuminate the line of the horizon or of the land, at night, and in cloudy weather. The apparatus consists of powerful Fresnel lenses, transmitting the light produced by the combustion of two cones of charcoal, forming the poles of a large magneto electric machine, driven by a donkey engine. The ray of light, it is claimed, will illuminate points on the sea coast so as to be visible at a distance of two miles. The same apparatus is used on the French transatlantic packets, and several, it is reported, have been ordered by the Russian government. In the account of the light, instances are cited where the movements of hostile fleets could have been detected by the use of such powerful lenses, and the ignorance of the enemy's maneuvers caused an entirely different result from that anticipated.

COMMERCE OF CINCINNATI.—According to the annual report of the Board of Trade of Cincinnati for 1869, just issued, that city has a capital of \$45,225,586 invested in manufacturing establishments, employing 59,351 persons, and turning out products to the value of \$119,140,089. The manufacturing industry is classified, the chief classes being as follows: Iron, 18,623,559; wood, 11,135,335; food, 17,508,892; clothing, 12,471,507; liquors, 15,609,698. A comparative table of the statistics of the manufactures of the different cities of the United States places Cincinnati fourth on the list, only New York, Boston and Philadelphia passing her. Her imports for 1869 were valued at \$283,927,902, and her exports 163,084,358, against \$280,063,948 imports and \$144,262,138 exports the previous year. In making up statistics, however, the city is accustomed to count produce in transit, from which little or no profit is derived. There were enrolled in that port, during 1869, 57 steamboats, 14 tow boats, 4 propellers, 3 ferries, 109 canal boats, 92 barges, making a total of 279 vessels, of 51,563 40 tons, valued at \$1,447,919. There were licensed 126 steam vessels, of 43,445 39 tons capacity. The total value of the river commerce of the towns and cities on the Ohio river is set down at \$715,000,000, of which amount Cincinnati is set down for \$169,506,000, Louisville for \$115,000,000, Pittsburgh for \$150,000,000, Wheeling and Smithland for \$30,000,000, Paducah for \$40,000,000, Cairo for \$20,000,000, and Wabash river and New Albany for \$15,000,000 each.

AN ENGLISH VIEW OF AMERICAN RAILWAYS.—Says Herapath's (London) *Railway Journal* prefacing statistics from Mr. Poor's Manual for 1869: "We must do our cousins on the other side of the Atlantic the justice to say that in their railway projects and constructions they have been eminently successful. If their railways are not so substantially constructed as ours they are rapidly made, and are better properties. In fact, the Americans have in their railways exactly what they want—an extensive cheap railway system. If at first starting they had made expensive railways, like ours, the dividends on the lines first laid down would have been so small that it would have damped the zeal for the required extension of the system. Moreover, perceiving the immense importance of a full railway system, the government and people of the U. S. have favored many of their railway companies with very material assistance, one of the most striking of which is large land grants, made in consideration of the construction of a line. It must be admitted that America has taken a very enlightened course toward her railway interests, and with marked success."

VOICE AND SOUND.—It is a curious fact that musical sounds fly further, and are heard at a greater distance, than those which are more loud and noisy. If we go on the outside of a town during a fair, at the distance of a mile, we hear the musical instruments; but the din of the multitude, which is so overpowering in the place, can scarcely be heard, the noise dying on the spot. To those who are conversant with the power of musical instruments, the following observation will be understood. The violins made at Cremona, about the year 1600, are superior in tone to any of a later date, age seeming to dispossess them of their noisy qualities, and leaving nothing but the pure tone. If a modern violin is played by the side of one of those instruments it will appear much the louder of the two; but on re-

ceding a hundred paces, when compared with the Amati, it will scarcely be heard. The voice of man is endowed with purity of tone in a higher degree than any of the vocal animals; by which, in a state of nature, it enables him to communicate with his fellows at a distance very remote. Providence has bestowed upon children a power of voice, in proportion to their size, ten times greater than that of the adult. In a state of nature this serves them as a defense and protection; for it is well known that children have, by their cries, alarmed and kept off the attacks of the most furious animals.—*Jour. Com.*

"GREAT CIRCLE" TRAVELING.—It is not known by everybody, though perhaps most people have been told of it several times, that for all purposes of navigation Puget Sound is nearer the great Asiatic marts than is San Francisco. Even if the vessels going out from the Golden Gate took their course direct for Hong Kong or Shanghai, they would, by reason of the larger degrees of latitude be farther south, scarcely have less sailing than by bending round more to the north. But, in point of fact, the prevailing winds and ocean currents of the Pacific are such that vessels from Asia find their most eligible route bringing them within fifty miles of the entrance to Puget Sound; thus making by the Northern Pacific, when completed, a saving of nearly a thousand miles of ocean navigation. This, added to the diminution of distance overland already alluded to, gives us a route from our Eastern cities to the coast of Asia shorter than any other by about fifteen hundred miles. When this road shall be in successful operation, the time required to reach the Pacific coast by means of it from New York city will exceed about four days, allowing an average rate of movement of thirty miles an hour. Thence to Shanghai, in China, the voyage will occupy eighteen or nineteen days, at the mean rate of twelve miles an hour, making twenty-two to twenty-three days in all from New York—a less time than is now occupied in making the voyage by way of the Isthmus to San Francisco.—*Old and New.*

A "NINE DAYS" WONDER.—R. A. Wilder, of Pennsylvania, has made application for a patent for a new railway and machinery, by which the trip can be made from New York to San Francisco in 60 hours. A morning contemporary says there will be four rails instead of two for a single track, and will be laid in such a manner that the road can be used in various ways. The passenger and freight cars can be built 17 feet wide, and will run at the rate of 60 miles an hour with twice the safety of running the present style of cars at 40 miles an hour. A double engine of 60 tons will take 1,000 passengers in a single train, with less wear and tear to the roadway than is now caused by a 35 ton engine. The cars can be fitted up with staterooms and with all the advantages of a hotel. The cost of the road will be about \$7,000 a mile more than building one of the present single track, and its capacity for transportation will be nearly treble. The present cars can also run on the road. For smaller cars it can be used as a double track. With 3,000 miles from New York to San Francisco, there would be an extra expense of only \$24,000,000. There will be but little oscillating movement of the cars, and their size will render them very pleasant for traveling. With the completion of this project, a person can leave Liverpool and reach San Francisco in about 9 days, a distance of upward of 6,000 miles.—*R. W. News.*

CIRCUMTERRESTRIAL TELEGRAPH—The Great Eastern has been engaged to carry the cables for the English system of ocean telegraphy lines from Falmouth, on the southern coast of England, to Gibraltar; thence to Malta; from Malta to Alexandria the existing cable will be used; thence via the Isthmus of Suez, the Red sea and the Indian ocean to Bombay. A line will start from the island of Ceylon to Penang, Malacca and Singapore. From Singapore there will be two lines, one southward to Batavia, with a land line through Java to Port Darwin, in Northern Australia. Another line will extend northward to Hong Kong and Shanghai. From the southern section, terminating at Port Darwin, Australia, will be laid a coast line to Burke Town, Rockhampton, Brisbane to Sydney. From Sydney there is a line to Melbourne and Adelaide. From Melbourne there is a line to Hobart Town. A cable line is being arranged for between Hobart Town and New Zealand. And, not to be driven completely out of the field by British capitalists, some of our own countrymen are projecting a line from San Francisco to China, via Alaska and Japan. So we shall very soon have no more doubts as to the possibility of circumterrestrial telegraphy.—*R. W. News.*

CAUSE OF RUSTING OF IRON.—It has usually been supposed that the rusting of iron depends principally upon moisture and oxygen. It would appear, however, from Dr. Carver's experiments, that carbonic acid is the principal agent, and that without this the other agencies have very little effect. Iron does not rust at all in dry oxygen, and but little in moist oxygen; while it rusts very rapidly in a mixture of moist carbonic acid and oxygen. If a piece of bright iron be placed in water saturated with oxygen, it rusts very little; but if carbonic acid be present, oxydation goes on so fast that a dark precipitate is produced in a very short time. It is said that bright iron placed in a solution of caustic alkali does not rust at all. The inference to be derived is that by the exclusion of moist carbonic acid from contact with iron, rust can be very readily prevented.

TO REPRODUCE A BEAUTIFUL WHITE ON FLANNEL GOODS TURNED YELLOW BY AGE.—For the restoration of old flannels to their original color, Prof. Artus tried a method that had been proposed formerly; 2½ lbs. white Marseilles soap is dissolved in 75 lbs. of soft water, and to the solution is added, under constant stirring, 1 oz. of liquor ammonia. The goods are soaked in the fluid, and afterward well washed with water. The object may be accomplished, however, quicker by putting the goods for an hour in a dilute solution of bisulphite of soda, and adding, under a constant stirring again, some dilute hydrochloric acid, when the vessel has to be covered, and goods left in it for 15 minutes longer. They are then washed in the same way.

—At a meeting at Rochester, Ind., on the 18th, the Celina, Huntington & Chicago Railroad Company was organized, and thirteen directors elected. This is an extension of the Baltimore, Pittsburg & Continental Railroad. The road will be built in the interest of the Baltimore & Ohio Railroad, securing a Chicago connection.

Put out nails into the fire, when there are barely coals enough to heat them to redness, let them remain until the fire has gone out, and they will be tough as copper wire.

GREAT DUTCH CANAL.—Next to the Suez canal in magnitude is the Amsterdam ship canal, which has been in progress about five years, and is expected to be completed in 1876. The canal is being formed through two lakes, both of which are shallow first, by making embankments on each side of the line of the canal, and then by dredging out the material between the requisite dimensions. A deep excavation is being rapidly formed from the lakes to the North sea, through the sand hills, and outside this pier built of large concrete blocks are in progress, which will extend about a mile into the sea, and encloses within them an area of about two hundred acres, which will be dredged to a depth of twenty-four feet below water. The canal will also have three locks at the North sea entrance, a little eastward of the harbor. The canal will have a width at the bottom of eighty-eight feet, which is sixteen feet wider than the Suez canal; a width at the top of one hundred and ninety-five feet, and a depth of twenty-three feet. The locks will be large enough to admit ships of the largest class.

The *Technologist* for August has a valuable article describing very fully the best machinery and manner of reeling silk, in the course of which there appears the following: Our country seems to be peculiarly adapted to the production of silk, the only drawback, thus far, being the high price of labor necessary to utilize it after it has been raised. If certain classes of labor should become so cheap that this difficulty should be obviated, it is probable that the United States would become one of the chief silk raising countries of the world. It is difficult to say how far this result may be promoted by improved machinery devised by the same inventive genius that has enabled our high priced labor to cope successfully in other departments with the starved mechanics of Europe, but it is safe to calculate that if labor meets us half way, it will be all that we shall require." What a grand opening is here, then, for those Asiatic laborers who are beginning to seek our shores, and who would come in tenfold greater numbers if they were encouraged to do so. Many of them are skilled in this very business, and if a hundred thousand were now engaged here in making silk, our artisans and laborers of other nationalities would certainly be none the worse for it.

The Western Iron Company's furnaces are situated at Knightville Indiana. They embrace two furnaces and a rolling mill, situated about a quarter of a mile south of the railroad. The company own about half a mile of switches. The capital stock is \$300,000. The stockholders are men of reputed wealth. Work was commenced in April, 1867, and the first furnace was put in blast October 13, 1868. The rolling mill commenced operations October 26, 1868. They have two upright engines of large power. It is estimated that forty tons of pig iron per day are smelted. The furnace and mill employs two hundred men. Common laborers receive \$1.75 and \$2 per day; puddlers, \$1.50 and \$5.50—the head puddlers and heaters receiving \$6.50 and \$7.50. Two hundred and twenty five tons of coal per day are used in the mill and furnaces.—*Register.*

A St. Louis street car company has been sued for \$10,000 by a lady, who fell and ruined her dress while leaving one of the vehicles belonging to the company.

According to the report of a recent visitor, 7,043 feet have been excavated at the eastern end, and 4,902 feet at the western end of Hoosac tunnel, leaving about two and a half miles to be perforated. The west shaft of the tunnel is 318 feet deep, and the central shaft not yet down to the line of the works, is 950 feet deep, with 94 feet to be blasted out. At the west end, drills worked by compressed air are used, and nitro glycerine is employed in blasting. The aggregate progress is 50 feet a week, three gangs of men working in relays of eight hours during the twenty-four, being employed. The length of the tunnel, when finished, is four and three quarter miles, including a deep cutting of several hundred feet through the solid rock at the western end. The time for its completion, as laid down in the contract, expires on March 1st, 1874.

The receipts at the Patent Office, Washington, last month, amounted to \$59,242 71; for the year ending June 30, 1870, \$684,787 53; amount expended during the same time was \$520,406 44, showing an excess of receipts above expenditures of \$164,381 09.

Fears are entertained that the ends of Hoosac tunnel will not meet, as the mineral in the mountain has undoubtedly affected the plumb lines and other instruments used in determining the direction of the bores.

The cost of mining and loading the ore on cars at the iron mines of Missouri is estimated at ninety cents per ton. It brings \$5.50 per ton at St. Louis, and after deducting the freight, \$1.90 per ton, a profit of \$2.70 per ton is realized.



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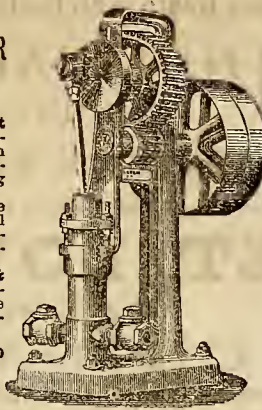
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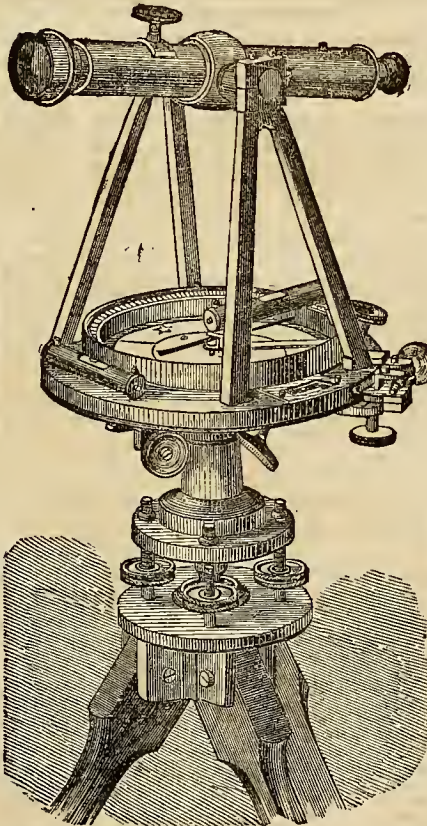
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St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
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do do do	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	2.30 P. M.	10.25 P. M.
Sandusky, Cleveland & Buffalo....	6.30 P. M.	10.25 P. M.
Mancie & Indianapolis.....	7.15 A. M.	10.25 P. M.
do do do	5.40 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond....	7.15 A. M.	10.25 P. M.
do do do	5.40 P. M.	10.25 P. M.
Hamilton Accommodation.....	9.30 A. M.	8.45 A. M.
do do do	6.50 A. M.	6.50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the depot office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent,

Pittsburg, Pa.

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

Time only 5 hours

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THE SHORTEST ALL-RAIL ROUTE TO Louisville, Nashville, Memphis, New Orleans, and all points South.

Trains leave Cincinnati as follows:

	LEAVE.	ARRIVE.
Louisville Mail.....	7.30 A. M.	9.05 A. M.
Louisville Fast Line.....	1.20 P. M.	11.15 A. M.
Louisville Express.....	5.00 P. M.	8.45 P. M.
Louisville Night Express....	11.15 P. M.	5.00 A. M.

The Low Fare Season and Commutation Tickets, good on the Wallon Accommodation, offer great inducements to the citizens of Cincinnati and Covington who wish to purchase country residences or small farms for gardening. This train leaves late in the afternoon, and arrives early next morning, giving all day to attend to business. For further information as to routes, low fare, &c., please apply at No. 1 Burnet House, or Depot, Covington, Ky.

SAM'L GILL, Gen'l Supt. Louisville.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.
7:15 a. m.—For Somerville.
8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.
3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.
4:30 p. m.—For Somerville.
5:25 p. m.—For Somerville and Flemington.
6 p. m.—For Easton and intermediate stations.
7 p. m.—For Somerville.
7:20 p. m.—EMIGRANT—Stopping only at the principal stations.
9:00 p. m.—For Plainfield.
11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:2, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, THURSDAY, SEPTEMBER 8, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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WRIGHTSON & CO., Proprs.

The Iron Region of Ohio.

In our statements of iron found on Sunday creek (Ohio), we did not rely on our own observation merely, for we do not profess to be metallurgists, and therefore would not absolutely affirm that iron ore which we saw and felt was positively of this or that quality. The statement we made was on the authority of a practical ironmaster. It is our opinion that such a man knows more of the quality and value of iron ore, than any geologist whatever. However, that may be, it is worth while to look a little into the iron belt of Ohio, and its development, and especially of the relation which Sunday creek valley bears to it.

The iron belt of Ohio (for it has that appearance in relation to the mineral strata) begins a little east of the mouth of Scioto river, and tending a little east of north passes through the State from the Ohio river to Lake Erie. In this whole course it seems to bind or hug the western outcrop of the coal. It does not seem to be much more than twenty miles wide at any one place. In its whole course over the State, this iron belt is dotted with furnaces and iron works. These furnaces do not indicate exactly the limits of the iron region, but they do indicate nearly where the iron is most valuable. The iron business of Ohio has hardly more than commenced, but there is already an immense amount of iron made in this State. In our last article we stated that the iron region included the

south part of Perry county; and we showed that by reference to the lines of furnaces. We shall repeat that, so far as is necessary to demonstrate this. Draw a line through Harrison furnace, Scioto county, and Big Land furnace, Vinton county, and it will leave all of Perry county to the west of it, and will include the whole of Sunday creek valley in the iron belt. This is enough. No geologist (whether he knows iron or not) can contradict this grand fact. Nature is developed in uniform laws, and the iron belt of Ohio moves in a direct and almost invariable line. What we said of Perry county iron is justified by the general law of mineral development. We find also, that good and abundant iron is found even east and south of that. Sunday valley, crossing the south line of Perry county into Athens, passes through Trimble township. In Walker's *History of Athens County*, a recent and very interesting work, there occurs this passage in relation to the mineral resources of Trimble township, Athens county: "Coal of an excellent quality, both bituminous and cannel, exists here in large deposits, which, as soon as it becomes accessible by branch railroads now projected, will command the attention of capitalists. *Iron ore of good quality is also found in various parts of the township*, and near to large deposits. Salt water of great strength, and thought by many to be equal to any in the Hocking valley, has recently been found in abundance in a well bored for oil by R. J. Atwood." All that we have said on the Sunday creek valley, as to iron, coal, salt, &c., is thus fully vindicated by those who fully understand this subject. We apprehend, however, that little of these facts will appear in the Geological Report, for those who have made the examinations there are young and inexperienced.

Let us now look at the development of furnaces in Ohio, as a pretty good indication of where and what the Ohio iron region is. The furnaces are in the following order, viz:

Scioto county—Harrison, Scioto, Pioneer, Bloom, Trimble, Ohio, Union.

Lawrence county—Monroe, Olive, Center, Buckhorn, Mt. Vernon, Lawrence, Aetna, Vesuvius, Hecla, Monitor, Empire, Marion.

Jackson county—Jackson, Berlin, Monroe, Jefferson, Cambria, Washington, Limestone, Madison, Iron Valley, Latrobe, Buckeye, Keystone.

Gallia county—Gallia.

Vinton county—Cincinnati, Hamden, Eagle, Vinton, Zaleski, Big Land.

Hocking county—Union, Hocking, Logan.

Muskingum county—Dillam.

Stark county—1 furnace.

Trumbull county—2 furnaces.

Tuscarawas county—1 furnace.

Erie county—1 furnace.

Lake county—1 furnace.

Mahoning county—1 furnace.

These furnaces make *fifty-five*, and at this time make about 250,000 tons of iron. There

is no doubt this quantity will soon be quadrupled, for iron in Ohio is in immense quantities. We have no doubt that the south part of Perry county and the north part of Athens will be one theater of iron operations. Till very recently that county was almost unknown, and to the present moment has not been examined by a skillful mineralogist. A county like that can only be fully known when examined by men who know something of practical mineralogy. Sunday creek valley is worthy the attention of scientific men. If the Atlantic & Lake Erie Railroad be made (of which we have heretofore spoken), it will at once develop the country and make itself profitable.

"Short Line."

To the Editor of the Commercial:

Can you inform your readers what has become of the enterprise for building the Dayton Short Line Railroad?

A few months ago quite a sensation was suddenly created by the announcement of the transfer of the franchise of the Dayton Short Line Railroad to a company of capitalists, some of whom were of our own city, who were, it was reported, going on at once to complete the road within a few months. As a result of this announcement, Cincinnati, Hamilton & Dayton stock dropped ten per cent. in a few days, and many persons, fearing the competition of the Short Line, sold out.

It is now stated that very recently the gentlemen composing the organization who were to build the road as specified, held a meeting at Saratoga, the object of which was to ascertain if there was not to be found somebody willing to buy them off; in other words, to pay them a handsome bonus for killing the enterprise.

This question is now pertinent: Was the Dayton Short Line Railroad, as resuscitated by the Sandusky meeting, simply a stock jobbing operation, or is the road to be built?

Will Mr. R. M. Shoemaker, or Mr. J. N. Kinney, or both, answer? OBSERVER.

[The above inquiry, pertinent to the interests of Cincinnati, and especially to the people along the line, will undoubtedly remain without a definite and satisfactory answer for some time, unless some one, not a catspaw, is asked for a solution. We have no doubt the gentlemen referred to by "Observer" could tell more than they would like, if they did not feel sore under disappointment.—ED. RECORD.]

AN ILLUSTRATED CYCLOPEDIA.—Webster's Unabridged Dictionary, with 3,000 illustrations, is not simply a dictionary of words, but it is at the same time an *Illustrated Cyclopaedia* of Natural History, Physiology, Geology, Botany, Architecture, etc.

Certainly no scholar can be without this Dictionary, and it ought to be within the reach of every child in the land. We believe it was the younger Pitt who said, whatever of power he had in speech was chiefly due to a careful study of the dictionary, word by word, in alphabetical order.—*Central Illinoisian*.

The Short Line Railroad.

A NEW TURN IN AFFAIRS.

A few weeks ago a meeting was held in Sandusky of the representatives of several prominent railroads, of which the New York Central was chief, having for its object, ostensibly, the immediate construction of a short line railroad from Dayton to Cincinnati. Considerable interest was awakened on the different lines, and it was thought by many persons that the road was to be immediately built. Since that time, however, influences have been operating to defeat the project. Meetings have been held in the east, and finally it is understood the Cincinnati, Sandusky & Cleveland Railroad withdrew from the arrangement. This looked like an unfortunate blow for the measure, and people many of them were making up their minds that the talk of building another road northwardly from Cincinnati, like all previous efforts, was to end in wind, and ultimate terms with roads already constructed, by which satisfactory running arrangements would be perfected.

Yesterday, however, a new phase was put upon the project by the formation of a new company to build a road from Cincinnati to Springfield, through the counties of Hamilton, Butler, Warren, Greene and Clarke. The incorporators are R. M. Shoemaker, J. N. Kinney, Seth Evans, Charles P. Taft, and Harry C. Shoemaker. The papers were sent to the office of the Secretary of State yesterday, and to-day a certificate will be issued incorporating the Cincinnati & Springfield Railroad Company. We are assured that the new company mean business, and the surveyors are to be put in the field at once.

Exactly what route will be determined on does not yet appear. It seems to be pretty well settled that the new line will be by way of Lebanon, but whether from that place it will run directly to Springfield by the shortest route or be deflected to Dayton, running through the great Centerville stone fields on its way, is a matter that may be determined by future developments. The indications are that it will leave Dayton to the west, and run as nearly straight as possible to Springfield, or it may occur that a route taking in Xenia will be selected. What Dayton will think of being left out in the cold, or what steps she may take to secure another great outlet to this city, and to the East, remains to be seen.

At any rate, the gentlemen connected with the present enterprise seem to be deeply in earnest, and what is done will probably be done quickly.—*Cin. Gazette.*

This sounds like business, and puts us in mind of the old story of the lark and her little birdies. The story is, that a farmer, on viewing his ripening grain, said to his son, "George, our wheat is ripe, go you unto our neighbors and tell them our grain is ripe, and that I want them to bring their sickles with them and we will cut it to-morrow." The little birds, greatly frightened, told their mother what was said, but she told them not to be uneasy. The next morning, when the farmer went to the field, he met none of his neighbors there, and with some excitement he told George that he should go to his uncles and cousins, and tell them that the next day they would all meet and cut his wheat, and to bring their sickles

with them. This was again told to the old lark with great fear and trembling by the little larkins, but she quieted their alarm, and told them there was no danger.

The next day, when the old man and George met alone at the wheat field, he was very wroth, and talked loud about the indignity and contempt of his neighbors and relatives, and told George to get out the sickles, "and that you and I will to-morrow cut the grain." When the old bird heard this, she said "Now indeed, dears, will we have to be gone, for when people determine to do a thing themselves, we may expect them to do it."

We recognize in the corporators none but Cincinnati men—gentlemen who are abundantly able to do whatever they undertake, and we should not be surprised if they did really do it.


Hot Boxes.


Can not some live Yankee supply a cure for "hot boxes" on railway trains? With the constant improvements in railway machinery, this would seem to be a simple invention, and yet it hasn't arrived. The question was suggested by a detention to your correspondent the past week, by which your readers lost their no doubt valued (if not valuable) correspondence. The Pacific Express, the lightning train from Chicago, made its usual excellent time as far as Harrisburg, and should make no stop from that city to Philadelphia, a run of 105 miles. In half an hour the train was stopped with two journals smoking in a forward car. Buckets of water and greasy waste cured this, and the run, after the loss of 15 minutes, was continued below Lancaster. Shortly again the train halts, and this time a lively tongue of flame is issuing from a journal on a rear car. Three successive stops were made on account of this trouble before reaching Philadelphia, and the loss of time in the aggregate very considerable. Now, we respectfully submit that, as somewhat greater problems in machinery have been solved, the remedy for this nuisance lies within the possibility of human genius. To the man who does it we promise a customer *certain* in one of the leading railways, if we can judge anything from the remarks of a prominent railway official on that "hot box" train.

We copy the above paragraph for the purpose of announcing that the remedy called for has been discovered in "Devlan's Patent Journal-Box Lubricator;" and, in our opinion, nothing need be done to abate the nuisance complained of but to give this remedy a fair trial. It consists of a pad or saddle corresponding to the length of the journal, made of wool and hair, combined expressly for the purpose, and filled with elastic sponge. Before putting this pad in the boxes, it is saturated with oil in the same manner as waste: the sponge holding the oil in a state of absorption, and supplying it to the journal as fast as required. The sponge never loses its elasticity, is not liable to decay or harden, and always keeps up to its place. The pad or cushion will run six months without re-oiling, if the boxes are in good order; and one man can pack one hundred cars with them in less time than he can pack ten with waste. This lubricator has been but recently introduced. We have seen certificates of its satisfactory working upon several roads, including the

Erie Railway and Pennsylvania Central, indorsing it in the most unqualified manner, and conceding all its inventors claim in its behalf as a lubricator superior to any other on the score of effectiveness and cheapness.

[On account of the vast importance of the subject, we are glad to insert the above puff from the *National Car Builder*. There is, however, a simple remedy that all can secure if they will; but we regret to be forced to confess that it is very difficult, in the face of *per cents* and private *drawbacks* on bills, to convince railroad officials of the importance of using good, pure oils. With good oil, and the box properly packed, it is very doubtful if we should ever hear of a "hot box." There is great economy to the company in using good oil, but not so much *per cent.* to the purchasing agent.]

 Every Saturday for September 10th, is one of the best issues of that excellent illustrated paper. It contains some very fine European war pictures, and other models of the engraver's art; while its literary contents are able, varied and entertaining.

 Late New Mexican advices confirm the almost incredible richness of the "Burro" mines and other rich discoveries in that vicinity. Wood and water are abundant, and there are no Indians in the district.—*Exchange.*

The Burro mountains have long been known as rich in mineral, but the last information, "there are no Indians in the district," is new and perhaps a little "fine drawn."

SCHENECTADY LOCOMOTIVE WORKS.—We learn that these works are fully employed, and have a larger number of hands in their shops than ever before. A good many locomotive engineers are never satisfied until they get their hands on the throttle of a "McQueen" engine. This establishment keeps up to the times in modern improvements, and the character of its work is not exceeded by that of any other manufacturer.—*Railway Times.*

[We are glad to hear of it, they deserve all the business they can do.—*Ed. RECORD.*]

MODERN VS. ANCIENT CONSTRUCTION.—Miss Martineau, on seeing the pyramids of Egypt, expressed regret that the art by which their immense stones were elevated was lost. This called out an article from a scientific engineer to the editor of the *Times*, stating that he, or any other engineer of the present day, would readily undertake the erection of a pyramid equal to the largest in Egypt. The facts which follow will show that this is no idle boast. According to ancient authors, from 100,000 to 300,000 men were engaged for *twenty* years on the great pyramid, the sum of whose united labor has been estimated to be equal to raising 15,750,000,000 cubic feet of stone one foot high. This, M. Dupin estimates, could be done by the steam engines of England alone in the short space of *eighteen hours*. In the construction of the southern branch of the London & Northwestern Railway, nearly double this amount of work was actually done by 20,000 men in less than five years.

The Interoceanic Canal.

ITS PRACTICABILITY AND ADVANTAGES—COST AND OBSTACLES TO BE ENCOUNTERED—IMPERFECTION OF ALL EXPLORATIONS—NECESSARY CONDITIONS TO THE ENTERPRISE—THE VARIOUS ROUTES PROPOSED, &c.

[From the Cincinnati Commercial, Sept. 3.]

An exceedingly interesting pamphlet by Mr. S. T. Abert, upon the subject of the practicability of a ship canal across the Isthmus of Darien, connecting the Atlantic and Pacific oceans, has just been issued from the press of Messrs. R. W. Carroll & Co., of this city, and, by the value of its condensation of information upon this very important topic and evident freedom from all ulterior interests in the matter, deserves from us more than mere passing mention. It is an intelligent and comprehensive survey of the wide yet unsatisfactory field of knowledge acquired upon the subject of an interoceanic canal, and evidently is animated by a sincere love for science and desire for the practical benefit of the world at large, instead of the interested motives which have too often rendered comparatively valueless, by jealousy and partiality, other works upon this topic.

Mr. Abert devotes a considerable amount of space in the first part of his pamphlet to a sketch of the Suez ship canal, showing the difficulties encountered in its construction, the results finally achieved by it, and speculating at some length upon its influence upon the commerce of the world and the probable effect upon the realization of the Darien canal project. The obstacles interposed by nature to the construction of the Suez canal, such as shifting sands, shallow and changing harbors, &c., were but small when compared with those interposed by the English government in its jealousy of the commercial advantages which the work, when completed, would give to France, in her command of the rich trade of the East. Lord Palmerston saw threatened by this canal the proud position of mistress of the seas hitherto held by Great Britain. Her greatest commercial rival, France, would possess by it a route which shortened by from 5,000 to 10,000 miles the distances from European and American ports to Bombay.

No means short of a war were left unemployed to retard the work. The Turkish government was but a tool in the hands of England. At length, after ten years of diplomatic combat and herculean labors, the Suez canal was finished. Its cost up to the date of opening was \$80,893,665, an average cost of \$808,936 per mile, the work being one hundred miles in length. This gave a canal of a surface width of 328 feet, except in difficult cuttings, where it is 190 feet, least bottom width 72 feet, depth at first 17½ feet, now 22 feet, and will be ultimately 26 feet. The deepest cuttings made on the line are, at Chalouf 56 feet, at Serapeum 62 feet, and at El Guisr 85 feet. These general facts are all for which we have any space here, and are only quoted in this connection to afford a basis of contrast between the magnitude and cost of this and the projected Darien canal. A carefully prepared table shows that the distances to Oriental ports from the great European and American entrepôts is shorter in actual number of miles by Suez canal route than it will be by the Darien route, but this is more than offset by the fact that adverse winds and currents, especially in the Red sea, where the prevailing winds are from the north, render the voyage via Suez four or five days the longest in time, which is, after all, the greatest consideration.

Napoleon III, when a prisoner at Ham, prepared a very excellent and exhaustive review of the advantages of the Darien route, in which, giving due consideration to the action of winds and currents in aiding or retarding the progress of the mariner on both routes, he says of the projected Darien canal: "In regard to the United States of America, all the distances would be shortened 1,400 miles and 15 days—Europe would gain 47 days to the coast of South America, while the United States would gain 62 days. To China and Sydney, Europe would gain 29 days and the United States 24 days." While these advantages exist on the side of the Darien canal, it is not, however, correct, to look upon it as a rival of that of Suez. The winds and currents adverse to the ship homeward bound from Oriental ports by the Suez canal, would be most favorable to those outward bound, while a safe and easy home trip would be afforded by the Darien route. Basing the calculation upon a mass of tabular statistics of distance and time supporting the alleged saving by the Darien route, the author computes the annual economy to the trade of the world in saving insurance on vessels and cargoes, interest on cargoes, reduction of wear and tear of ships, saving of wages, provisions, &c., at \$49,530,208. He further figures that the increase of trade in the next ten years at even less than the ratio of increase for the ten last past (10 per cent. per annum) will be so vast that at that time the annual saving by this canal in the items mentioned, will amount to \$90,060,416, and the total, then supposing the canal finished all the while, would reach the enormous sum of \$767,718,224 10. Other tables of figures seem to prove conclusively that at the lowest possible estimate the annual amount of exports and imports which would pass through the Darien canal, basing the calculation upon official reports as far back as 1856-7, would be \$451,029,132. As it has become an accepted proverbial fact that figures can not lie, and the figures cited by Mr. Abert are so eminently satisfactory in favor of the projected enterprise, it is not difficult to appreciate and sympathize with the earnest feeling in his appeal, that this great work should be American, that American energy, talent, money and pluck should do it, and own it for all time. In urging this he cites a mass of statistics showing in part the vast advantages which would accrue from such a canal in the development and increased wealth of all the great river basins drained into the gulf of Mexico or the Caribbean sea, 4,245,000 square miles in extent, with 12,000 miles of navigable streams, all along which may be established a direct trade with the Orient. What a contrast between this and the basins of the Mediterranean system of rivers, directly tributary to and benefited by the Suez canal, which are only 2,410,000 square miles in extent, and have only 5,000 miles in navigable streams. The effect of the Darien canal in opening direct water communication from the Orient to all the rich western interior, even as far north as the great lakes, bears, however, but a small proportion to the vast benefits it would confer upon the world at large. Facts and figures of the plainest kind seem to be almost apocryphal when an intelligent idea of these benefits is attempted to be conveyed. Accepting, then, the Darien canal as an absolute necessity of the age, let us see from the mass of facts before us in this work what will be its probable cost, the natural obstacles in its way and how they are to be overcome. All these considerations depend, of course, upon the route selected, as a grand primary considera-

tion, and it is to be very sincerely regretted that with all the efforts which have been made by exploring parties, at great sacrifices of treasure, labor and life, we have as yet but a very imperfect knowledge of the country through which this great work is to be pushed. Not a single map exists which is more than merely approximately correct, while each exploring party sent out seems to have done little more than detect and expose the errors of those who had gone before, discover new difficulties in the way of the enterprise, and finally fancy that they had found the only practicable route, only to have, in turn, their idol shattered by their successors.

Scientific men agree that at some remote period in the world's history, an open sea here separated the two continents, and that subsequently a great convulsion of nature upheaved the chain of mountains now running through the isthmus. It is not necessary here to cite the reasons for this belief, or name the eminent men who have affirmed it. Let it suffice that it is a conclusively established and accepted fact. This irregularity of nature has left, as a gigantic barrier between the two oceans, a combination of obstacles to such an enterprise as that proposed as would seem almost to defy man's power to overcome, or even adequately to explore them. Between enormous rocky peaks the lowlands are covered with dense thickets of thorny, interlaced vines and shrubs, where not a step can be taken without the most violent labor—where ever a partial depression of the chain of peaks gives promise of a practicable route, the shores on either side are such as to forbid harbors—when on either side appear good harbors, the mountains behind them rise most appallingly—add to all this the fact that, for reasons still unexplained, some forces of nature here render so irregular and inaccurate all barometric tests, that the prime task of engineering, the acquiring of a correct knowledge of height, is almost impossible; last, but not least, the presence of a large tribe of hostile savages in the country deemed most naturally favorable to the enterprise, prevents any thorough exploration except by a large armed party—and the causes of the meagerness of our information concerning the isthmus may be appreciated. It can, indeed, only be said that one route, and that one which presents seemingly insurmountable obstacles, has ever been at all thoroughly explored; that is the one known as Michler's route, surveyed by Brevet Brigadier General N. Michler, United States Corps of Topographical Engineers. No less than 19 routes have been suggested, on which summit altitudes range variously from 174 feet (claimed) to 2,956 feet. Little reliance can be placed upon the lower altitudes reported. Cullen's pass, for instance, was affirmed to be only 150 feet, and was proven to be nine times that much.

Clearly, lift locks will be necessary, at least eight at each end, and in all probability (certainly on several of the routes) a gigantic tunnel as well. One route, that suggested by Gisborne, from Darien to San Miguel, proposed a tunnel over 7 miles long. Guard locks will also be necessary to protect the canal against the varied influences of the tides in the Atlantic and Pacific oceans, for at Panama, on the Pacific side, the highest flood tide rises about 10½ feet above the level of the mean tide of the Atlantic, and the extreme ebb falls about the same number of feet below it.

Locks of the enormous size which will be required here, say 400 feet long by 90 feet wide, with an average raise of 12½ feet, seem

somewhat stupendous constructions, but sink into insignificance beside the awful tunnel proposed. We are calmly told that "to pass ships with the topmast struck, the intrados of the arch should be 100 feet above the surface of the water. A semi-ellipse, with semi-transverse and conjugate diameters of 100 feet, added to the canal prism of 30 feet in depth, will give an area of tunnel equal to 10,104 superficial feet, or to 1,976,263 cubic yards per mile." Financially, the thing looks large, \$16,000,000 estimated for locks, \$19,762,630 per mile for tunneling, \$1,792,202 per mile for open canal, and the figures begin to add up with great rapidity. Before mentioning the several routes which have been suggested, Mr. Abert assumes the following conditions for success of an interoceanic canal, irrespective of financial considerations, the estimated cost of \$134,450,154 being a mere hagatelle to the well regulated engineering mind.

First—The isthmian canal may be a through cut, with guard locks.

Second—It should be without a tunnel.

Third—It may have a summit level and moderate lockage, to avoid excessive cutting, and tunneling.

Fourth—Great advantages in other respects, viz.: shortness of line and fine harbors, may compensate for a short tunnel.

Fifth—The route should possess good harbors, or such as can be easily improved.

Sixth—The canal should be sufficiently wide to permit ships to pass easily, or it should have convenient turn outs. (As to width, Kennish proposes 200 feet, General Michler 100 feet, and Mr. Abert 190, the latter two with sufficient number of turn outs.)

The Tehuantepec route proposes a line of 190 miles, with 161 locks (might be reduced to 120) on it, and possesses little merit as a practicable line.

The Honduras route has also been condemned. There have been five routes proposed from San Juan de Nicaragua and Lake Nicaragua, and three others by way of Lakes Nicaragua and Managua. All these routes commence at San Juan de Nicaragua, and follow the San Juan river to Lake Nicaragua. From this lake three routes pass through Lake Managua to Realijo, and to the gulf of Fonseca. Lake Managua is about 20 feet above the level of Lake Nicaragua. The dry season suspends the flow of water between the lakes, and the question arises whether, even by the aid of a dam, sufficient water can be stored in the smaller lake to feed the summer level on each side of it during the dry season. The shortest line, including Lake Nicaragua, is the Brico route, which has 119 miles length of San Juan river, 57 miles of Lake Nicaragua, and 18 miles from the lake to the Pacific—in all, 194 miles. The others are much longer; one, the Fonseca and Estero Real line being 313 miles, that by Fonseca and Tamarinda 309 miles, and that to Realijo 338 miles. The ports on the bay of Fonseca and at Realijo are good, but the others on the Pacific side are not, while that of San Juan del Norte, on the Atlantic, is bad, and rapidly deteriorating by sand forcing into the entrance, and the arrest of sediment in the river on its way out.

Concerning all these suggested routes, Mr. Abert concisely says: "A healthy and productive country, two lakes affording an inexhaustible supply for a summit level, a divide easily overcome at an altitude represented as 174 feet, and the convenient channel of the San Juan, through which the waters of Lakes Managua and Nicaragua find their way from an ample theater of hills to the Atlantic

ocean, are advantages which engineers and capitalists are loth to abandon, and which the reader relinquishes with regret. We may expect, therefore, to find the question continually revived. But its advantages have been overestimated. The San Juan river has cut an outlet for the canal through the ridge separating Lake Nicaragua from the Atlantic; but to pierce the divide on the opposite side, which separates the lake from the Pacific, a tunnel of about six miles in length will be requisite."

The Panama route has also met with much consideration and favor, partially, doubtless, from its being one of the best known of any. Mr. Garella proposed a canal here, starting from the bay of Limon, on the Atlantic, following the valley of the Chagres, ascending with 17 locks to the summit, which would be passed by a tunnel 17,500 feet in length, at an altitude of 135 feet above high water in the Pacific, and descending with 18 locks, terminating at the bay of Vaca del Monte. It is believed, however, that tunnel may be avoided. With the tunnel this work would cost \$141,855,871. A locked canal on Colonel Hughes' line, slightly different only from this, would cost, it is estimated, \$109,610,150. The harbors on each side are good and easily susceptible of improvement.

It is quite within the bounds of possibility that, however good this route, some difficulty would be found in making use of it, from the fact that it would be necessary, in order to do so, to obtain the consent of the Panama Railroad Company to the use of the land belonging to their reservation through which it would have to run.

The San Blas and Bayamo river route crosses the isthmus at the narrowest point, it being but 30 miles from ocean to ocean, while the tide of the Pacific is said to approach within 15 miles of the Atlantic coast. The great obstacle here is the necessity for a tunnel 7 miles long. The harbors are good, and the altitude of the tunnel would have to be but 93½ feet above mean tide.

There is little doubt among explorers that through Darien will be found the most favorable conditions for an interoceanic canal, between Caledonia bay and the gulf of San Miguel. Every effort at exploration here has, however, so far resulted in failure. Hostile Indians, a very broken country, and other obstacles, have caused the failures of Cullen, Gishorne, Strain, Prevost, Codazzi, Bourdiol and all others who have attempted to explore and survey routes through this district, and the records of what they did and what they failed to do strongly impress the mind with hope that here may yet be found the long sought for practicable line. It is indeed affirmed (although Mr. Abert has given no place in his book for such unofficial statements) by travelers who have communicated with the Indians, that to them is known a pass where the altitude of the divide is so low that these savages drag their canoes from one small stream which flows to the Pacific, and launch them in another which glides down to the Atlantic, but the savages declare that the white man shall never know that pass, for they feel that the announcement of its discovery would be the death knell of their race.

A rumor is given place to that Sir de Gorgota, of New Granada, had found a route between the gulf of San Miguel and Darien, by ascending the Tuyra and crossing the valley of the Atrato, in which the altitude of the divide above mean tide was not more than 190 feet. No scientific support is given to the story, and, consequently, but little credence.

Mr. De la Charme claimed to have found a route by way of Tuyra, Paya and Caquarri to the Atrato, only 50 miles in length, and only 178 feet at highest altitude. It is an interesting statement, but is not backed by any scientific evidences or professional engineering testimony as to its truth.

From the mouth of the Atrato river, 100 miles up and then straight across to the Pacific, cutting 26 miles, mainly through solid rock, passing the divide at an altitude of 505 feet, by a tunnel 3½ miles long, and large enough to admit two ships abreast, was the plan suggested by Mr. Kennish.

Michler's proposed route, already referred to, is the only one which has been so thoroughly explored that it can be said with any degree of confidence that we know anything about it, and consequently is the one on which we are most apt to look favorably. It is to extend by way of the Atrato to the Truando, thence by a straight line to the head of the Palizadas, thence to the foot of the Salto, by a curved line to the head of the Salto, including a tunnel of 800 feet through the Sierra de los Salto, thence directly to the mouth of the river Grundo, a tributary of the Nercua, then, leaving the valley of the Nercua, piercing the mountains with a tunnel 12,500 feet in length, continuing to the mouth of the Chuapador and down the valley of the river Paracuchichi to the Bahia Ensenada or Estero de Paracuchichi.

This would require 95 miles of river navigation and 52½ miles of canal, making an aggregate length of 147½ miles. The estimate of expense made by General Michler is believed to be too small. He thinks the work should be done for \$134,450,154, while Mr. Abert computes it, on General Michler's data, at \$176,625,154. It is worthy of note that General Michler, at the conclusion of his report, from circumstances which had come to his knowledge and observation, expresses his belief that "it is highly probable that a still more favorable route can be found leading out of the valley."

Mr. Abert does not seem to attach his confidence to either one of the routes thus concisely sketched, but contents himself with presenting them all fairly, pointing out the great advantages which would accrue from such a canal to the world at large and especially to America, and showing just how much has been done and how vast the field for labor yet open before any determinate action can be taken. In answer to the objection that the usefulness of such a canal is greatly diminished by the completion of the Pacific Railroad, he argues the much cheaper transportation for freight by this canal, showing that its tolls need not be more than \$1 per ton for a length of 50 miles, which, with the added advantage of avoiding breaking bulk, will bring it far below any possibility of competition for heavy freights by the railroad. It would indeed be little, if any more, than one-fourth the average rate per ton per mile on the railroad, with the vast advantage of this toll being but for 50 or at most 100 miles against the 3,000 miles of the railroad.

In conclusion, we will quote one of his paragraphs as a condensed summing up of the whole matter: "It is manifest that an interoceanic canal is not impracticable to American talent and energy. It can undoubtedly be executed by international co-operation. It is demanded by the common interest, commercial, political and social of all peoples. It is supported by humanitarian considerations, immediate in their influence, broad and practical in their relations to the interests of society."

Railroads in the Present European War.

There are few who will contest the assertion that had no railroads existed in the United States, the recent great struggle between North and South, if terminated at all in favor of the Union, would have required many more years of painful sacrifice. In the war of 1812-15 with Great Britain, it cost six weeks' delay and many times the present value of a barrel of flour to convey such a barrel from New York to Lake Erie. In 1861-65, the numbers of men, the quantity of stores, and the tremendous paraphernalia of war conveyed in a day or two to scenes of action hundreds of miles distant, amazed the world. As early as 1859 the French had done marvelous things in this way, when they assisted the Italians against Austria. In eighty-six days—that is to say, from the 10th of April to the 5th of July—they transported 604,381 men and 129,227 horses on their various railroads, and of these the Lyons road alone threw 227,649 men and 36,358 horses upon the Italian frontiers. In 1866, the Prussians in twenty-one days transported 197,000 men, 55,000 horses and 5,300 wagons, in perfect condition, over distances varying from 120 to 360 miles, or much less, in the average, than the space over which their armies now have to be moved in prosecuting the invasion of France.

This immense acceleration of movement by means of steam and railroads must exercise the greatest influence upon the result. Time, money, food, clothing, health and discipline, are all found to be vastly economized; and as for casualties, the proportion was found to be far less than on the old foot marching system. Infantry and the munitions and equipments are naturally disembarked more rapidly than cavalry and artillery. In Germany the cars intended for the transportation of troops, horses and batteries, are provided with from three to four axles and six to eight wheels. Each axle is calculated to bear the weight of from twenty to twenty-five men or two to three fully equipped horses. One field piece or one army wagon is reckoned for every two axles. For the heavier trains two locomotives are employed, both pulling, or one pulling and the other pushing. Such a double train, say the military journals of Prussia, with 38 to 40 cars, will convey a battalion of 1,000 men, along with their ammunition wagons and the horses of the officers. One of from 30 to 32 cars will transport either a battery of field artillery of 6 guns and 2 howitzers, leaving half of the ammunition wagons and the two leaders of every six-horse team to follow on a single train, or a squadron of 150 mounted men and 160 horses, the riders accompanying their animals. A rocket battery requires only a single train and one locomotive.

Upon carefully calculating weights, time and distances the conclusion is that a division of 10,000 men—8 battalions, 2 regiments of cavalry and 2 batteries, on the German plan—might be carried 120 miles on a long summer's day, a double track and turnouts existing, and all things in good order. This, at least, is about the rate at which the Prussians have moved toward the Rhine, only that by peculiar effort they managed to get nearly 20,000 men through on each railroad line in the 24 hours. Thus, in the lapse of 10 days they presented 200,000 men on their frontier, in addition to such troops as they had already in station near the scene.

California's richest gold mine yielded a profit last year of \$340,000.

Michigan Iron Ore.

At the recent meeting of the American Association for the Advancement of Science, at Troy, Prof. Winchell, the state geologist of Michigan, read a paper on the "Post tertiary phenomena in Michigan." After examining at some length the various theories regarding peat and its formation, he pointed out the reliquary evidences that these beds must have been ancient lakelets, and the sediment is the peat of our experience. This sediment, too, incloses vast mastodon and mammoth remains, found so near the surface that it would seem that they must have been buried there within 500 years. For the first time, too, the remains of the gigantic extinct beaver of North America has, within a short time, been unearthed in Michigan. Still more interesting to geology and science generally is the discovery of the flint arrow head in situation almost similar. This discovery was made in Washtenaw county, the relic within 7 feet of the surface, and the mastodon remains found near Tecumseh, a few miles distant, but two and a half feet from the surface; the Adrian mastodon, but three feet deep. The professor next examined the bog iron ore in the northern peninsula of Michigan. The iron formation there in one county covers several townships and penetrates to an undiscovered depth. It is of remarkable purity and inexhaustible abundance. Lying directly in the projected line of the Northern Pacific Railroad, it will prove of incalculable value to the companies constructing that great route. The prodigious deposit our investigations prove to be derived from the disintegration of the hematites and magnetites of the contiguous region of the West. Following an exhaustive discussion of this point, the professor gave a theory of the outlet of Lake Superior and its discovery. He pointed out the formation of the White Fish river, and the formation of its boundaries, as indicating a glacial action, and the forming of the vast channels running into the lake by erosion. Through this the waters of the lake flowed in a powerful stream in that earlier epoch when the lakes stood from 50 to 300 feet higher than at present. The entire water expanse of this northern region indicates the phenomena of erosion as the explanation of these inland seas.

During the week ending Sept. 3d, among other general merchandise, there was imported into the port of New York the following values (gold) of metals, all of which, with the exception of tin, are possessed by us in the greatest possible superabundance: \$6,160 in chains and anchors, \$63,859 in cutlery, \$23,406 in guns, \$16,614 in hardware, \$101,690 in railroad iron, bars, \$15,263 in pig do., \$10,935 in sheet do., \$99,984 in pig lead, \$10,924 in metal goods, \$10,098 in needles, \$4,462 in old metal, \$31,477 in steel, \$157,407 in tin, boxes, \$141,188 in do, slabs, \$10,324 in wire, \$13,395 in zinc.

The imports for the week ending Sept. 3 show a little falling off in dry goods, and a considerable decrease in those of general merchandise; the total being above \$7,500,000 in foreign gold value.

	1888.	1889.	1870.
Dry Goods.....	\$2,362,910	\$2,116,405	\$3,532,797
Gen. mde.....	2,222,071	3,40,672	4,101,673
Tot. for the week	\$4,584,771	\$5,522,077	\$7,633,870
Prev. reported...	168,315,322	207,286,682	198,014,245
Since January 1	\$172,900,073	\$212,809,059	\$205,648,215

According to Gladstone, the wealth of England increases \$500,000,000 every year.

The Pennsylvania Steel Works at Harrisburg.

We collate the following interesting facts and figures from the correspondence of the Philadelphia Press:

The Bessemer Steel Works, established three years since a few miles east of Harrisburg, are in successful operation, and their business is constantly increasing. The President is Samuel M. Felton, long and favorably known from his able connection with the Phil. Wil & Baltimore Railroad; and the Secretary, Chas S. Hinchman, and Robert H. Lamborn, Treasurer. The steel works are now turning out over 1,000 tons of steel rails per month, and during the balance of the year they expect to make 15,000 tons per month, and next year 25,000. This is the first mill constructed in America especially for this branch of manufactures. \$900,000 are invested for machinery alone, so that they are enabled to make heavier shafting than any other establishment in our country. Their new hammer, having a 35,000 lbs weight, cost, with its appointments, \$92,000, and is the largest in the United States. The anvil block of this hammer weighs 150 tons, of cast iron, and rests upon an immense structure of solid piling, reaching to the rock, set in and under the earth.

All the rails made by this company pass beneath this ponderous rule, which by means of relays of skilled laborers is kept in operation day and night. The high quality of rail secured by its use is already recognized by the best engineers of the country. It was through the urgent advice of J. Edgar Thomson, President of the Penn. Central, that it was erected. The use of smaller hammers, although producing a rail such as is usually placed upon the market, was not capable of satisfying the fastidious officers of that company. New machinery for still higher perfection is already projected. This expense of \$92,000 is, therefore, solely to increase the toughness and improve the quality of the rail.

The greater part of their work is done by machinery, with a hydraulic apparatus by which the ordinary labor of 200 men can be accomplished by a single hand. They own 100 acres, which is traversed by the Penn. Central Railroad, and quite a settlement has sprung up in that vicinity.

Some idea of the extent of these works, and capital employed in them, may be gained when it is known that they turn out \$100,000 worth of steel rails per month. They furnish rails not only to the Penn. Central, but to nearly all other roads throughout the United States. Col. J. G. Stephens, resident engineer, expresses the opinion that while iron rails wear out in 8 years, steel rails will outlast 17 iron rails. The labor is of an exceedingly intelligent class, as most of the work is done by machinery, and the workmen are required to perform very delicate chemical operations. A skillful chemist is constantly employed testing the products of the work and the materials used in the manufacture of the rails and forgings, that they may be kept uniform and up to the highest standard of excellence. The manager—Mr. J. B. Pearce—worked for more than two years in various Continental and English steel works before connecting himself with this establishment. He is a graduate of Yale College.

The Marietta (Ohio) Iron Works are doing business at the rate of \$800,000 annually, and about \$180,000 are paid out annually for labor, while \$40,000 is consumed in coal.

THE HOOSAC TUNNEL.—John T. Daley, president N. Y. Burleigh Drill Co., correcting an assertion in the N. Y. *Evening Post* that drills similar to those of the Mont Cenis tunnel were used in the prosecution of this work, says:

"The machinery at Hoosac is purely the invention of Charles Burleigh, of Fitchburg, Mass., suggested by the exigencies of the work itself, and attained only after numerous failures with other plans. At Mont Cenis they have to keep 200 drills in the shops, to maintain a gang of 16 at work; at Hoosac there are never more than one-sixth that number, and frequently a drill will run for four months without a dollar's repairs. At Mont Cenis the progress is sometimes not more than 32 feet per month; at Hoosac the contractors are bound to make not less than 150 feet per month, and have made as much as 168 feet at one heading.

"The Mount Cenis drill is made on the principle of a direct blow on the feeding screw, the result of which is to batter the machine to pieces; at Hoosac the concussion is taken up by steam or air in the cylinder, and the machine is not jarred at all. It was used in building the Pacific Railroad; is used in the work at Hell Gate; is applied at the Nusquahoning tunnel; at the Georgetown, Colorado, tunnel, and in the caisson of the East river bridge.

"Neither is there any analogy between the air compressors, there being the same disparity between their construction and performance as the matter of the drills.

RAILROADS OF ARKANSAS.—D. B. Sickles, Financial Agent, in this city, of the State of Arkansas, gives some very encouraging statements in regard to the progress of the work on the various railroads now in the course of construction in that State. He informs us that the Memphis & Little Rock Railroad has recently been opened to Brinkley, and that passengers from Memphis can now reach Little Rock in about 12 hours. The completion of the road before the 1st of January is positively assured. The Little Rock & Fort Smith road is finished as far as Gold creek, a distance of 80 miles from Little Rock, and the rails will be down to Lewisburg in about two weeks. On the Little Rock, Pine Bluff & New Orleans Railroad, 35 miles have been graded and made ready for ties; iron rails, with fastenings, sufficient to complete 10 miles of track are now at Chicora, the terminus of the road, and it is the intention of the company to have trains running through to Pine Bluff by the 1st of January. The Mississippi, Ouachita & Red River road has over 500 laborers employed, and about 20 miles of road bed have been prepared for the rails, which are now on the ground. It is asserted that in less than twelve months Arkansas will have over 600 miles of railroad in operation through the richest sections of the State.

PITTSBURG & CONNELLSVILLE RAILROAD.—The work on Sand Patch tunnel, by Messrs. Howley, is progressing rapidly. The eastern portal is already completed with a cut stone arch 100 feet into the tunnel. The arch is completed to shaft No 3, and only 800 feet more remains to be arched, to make the tunnel secure. There is yet 800 feet of bottom to take out, but the large force employed will remove it in five months more and complete this great work. President Hughart and Mr. Latrobe visited it on the 8th ult., and passed through it examining the work, and expressed themselves highly pleased with everything done and doing.—*Genius of Liberty.*

Railroad Items.

—The Coldwater *Republican* of the 20th says: "The Ohio & Michigan Railway has been located north-westerly from this place, by the way of Burlington, Battle Creek, Augusta, and Richland, to Allegan, and south-easterly, via Ovid, Alganses, Hall's Corners, Camden and Amboy, to the Ohio state line, provided that the localities through which the road would pass on the above line will transfer their pledged subscriptions to the company stock books, furnish the right of way, and perform such other conditions as the company may require. The engineer corps will immediately commence operations."

—The Terre Haute & Indianapolis Railroad Company have assumed control and management, by lease, of the St. Louis, Vandalia & Terre Haute Railroad. It will be known as the Vandalia Division. The following management is announced: R. A. Morris, Sec'y and Auditor, Terre Haute, Ind; M. W. Williams, Treasurer, do.; Chas. R. Peddle, Gen. Supt., do.; John W. Conlogue, Supt. Vandalia Div., St. Louis, Mo.; John E. Simpson, Supt. Indianapolis Div., Indianapolis, Ind; H. W. Hibbard, Gen. Freight Agt., do; F. Chandler, Gen. Ticket Agt., St. Louis, Mo.; N. Stevens, Gen. Agt., do.; J. H. Hager, Paymaster, Terre Haute, Ind.

—The *Wheeling Register* says work on the Baltimore & Ohio bridge at Bellair is being pushed forward with rapidity. The Keystone Bridge Company, of Pittsburgh, have got the timbers ready for the entire bridge, and are already putting the iron superstructure on some of the piers. It looks as if the bridge would be ready for the passage of trains by Christmas.

—The receipts of the Central Railroad of New Jersey for 1869 show an increase over the preceding year of \$280,709 17. The total passengers carried for 1869 were 2,296,864; the merchandise carried was 705,611 tons; coal transported, 1,506,052, being a decrease in Lehigh of 32,172, and of Lackawanna 30,621 tons.

—More than half the line from Little Rock to Fort Smith, 160 miles long (266 miles by river), is ready for the iron, and track is laid for 26 miles. It is intended to run trains to Lewisburg, 50 miles, by October 1st, and to or near Spadra, 100 miles, by January 1st. It is expected that the line will be open to Fort Smith early in 1871.

—Surveys for the Cairo & Fulton road have been completed from Little Rock to the Missouri line. Surveys of the line south-west of Little Rock are in progress. Nearly 20 miles of the line from Little Rock northward is ready for the rails, and will be in operation by December 1.

—Capt. Geo. W. Hughes, chief, and Capt. H. C. West and Mr. Johnson, assistant engineers, have commenced the survey of the southern division of the Cairo & Fulton Railroad from a point on the river, in Little Rock, and the line and level will be rapidly run to the Texas border.

—The first anniversary of the Windsor & Annapolis Railway was appropriately celebrated at Waterville, on the 10th of August. More than four hundred employees and guests participated. Vernon Smith, Esq., is manager of the line.

—The track of the Fredericksburg & Charlotteville Railroad has been laid 15 miles.

—The Savannah, Griffin & North Alabama Railroad is finished to within six miles of Newnan, and is open to passenger traffic to that place by stages connecting.

—The stockholders of the Memphis & Charleston Railroad have voted in favor of issuing a million dollars of third mortgage bonds, to liquidate their indebtedness to the State of Tennessee.

—The Mobile & Ohio Railroad has added 10 locomotives and 200 cars to accommodate the increased traffic. The net receipts for 1869-70 were \$759,758 31. The company's debt is substantially paid off.

—Within the past two weeks the St. L., V. & I. road has carried over the Mississippi at St. Louis, by the new transfer ferry boats, 200 loaded freight cars.

—Iron is going down on the track of the Mo., Kansas & Texas Railroad at the rate of 1½ miles per day.

—Lewis Hurley, a prominent citizen of Heidelberg, Germany, is negotiating for the whole of the Louisville, New Albany & St. Louis Railroad bonds issued under the last call.

—The Lake Superior & Mississippi road was formally opened for business with an excursion from St. Paul to Duluth on the 23d of Sept. The last rail was laid some three weeks before.

—The track of the St. Joseph & Denver City Railroad is laid 70 miles beyond St. Joseph. Trains are running to Sabetha, 60 miles out. Two new engines have arrived.



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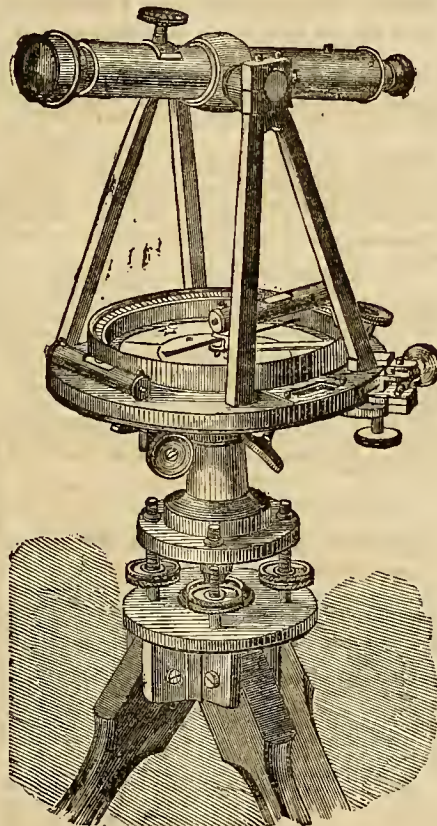
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JANUARY 1st, 1870.

Cincinnati to St. Louis Without Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph, Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois Central Railroad.

TRAINS RUN AS FOLLOWS:

St. Louis, Evansville and Cairo
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Osgood Accommodation..... 3:10 P. M. 8:45 A. M.
Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cincinnati time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

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1400 MILES under One Management. 860 MILES without Change of Coaches.

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This Railway extends from

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BUFFALO to NEW YORK, - 423 Miles.

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AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A. M.;

Urban, 10.29 A. M.; Galion, 12.57 P. M.;

Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine).

(Sleeping Coaches through to New York);

Akron, 4.26 P. M.; Ravenna, 5.10 P. M.;

Meadville, 8.00 P. M. (Supper);

Susquehanna, 7.55 A. M. (Breakfast);

Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M.

Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland;

at Elmira for Williamsport and the South;

at Binghamton for Cooperstown, Albany and the celebrated summer resort,

Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urban, 1.25 A. M.;

Galion, 3.58 A. M.; Mansfield, 4.44 A. M.;

West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.;

Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine);

Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M.

Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburg,

Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City;

at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel.

are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

Boston and New England Passengers,

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The Erie Railway Company has opened a new Ferry from New Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

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And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUC, Gen'l Southern Agent.

WM. R. BARR, Gen'l Pass'r Ag't

Best Route to St. Louis and Chicago

INDIANAPOLIS,

CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,

North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	9.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	3.35 pm
Lawrenceburg Accommodation.....	4.20 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile north of the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7.00 A. M.	6.30 P. M.
do do do.....	9.45 P. M.	7.00 A. M.
Toledo, Detroit & Canada.....	7.15 A. M.	10.25 P. M.
do do do.....	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago.....	7.15 A. M.	10.25 P. M.
do do do.....	2.30 P. M.	5.40 P. M.
do do do.....	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo.....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	2.30 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo.....	6.30 P. M.	10.20 A. M.
Muncie & Indianapolis.....	7.15 A. M.	10.25 P. M.
do do do.....	5.00 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond.....	7.15 A. M.	10.25 P. M.
do do do.....	5.00 P. M.	10.20 A. M.
Hamilton Accommodation.....	9.30 A. M.	8.05 A. M.
do do do.....	6.50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots, East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omnibus call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & Co.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Ellettsburg, Sparta, Liberty, Worthville, Campbellsville, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sundays). Stops regularly at Walton, Ellettsburg, Sparta, Liberty, Worthville, Campbellsville, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Ellettsburg, Sparta, Liberty, Eagle, Campbellsville, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FAIR ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Manahunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahannock &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays), for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily, (except Saturdays), for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9:45, 9:30, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKEL, Superintendent.

H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, THURSDAY, SEPTEMBER 15, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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WRIGHTSON & CO., Prop'r's.

The Kansas Pacific Railway.

But a few weeks since the announcement was made to the world that the last rail in the track of the Kansas Pacific Railway was spiked to the ties, and that another line of iron road was completed from the Missouri river to the Platte, a distance of six hundred and thirty-seven miles.

The newspapers of the country lauded the projectors and managers of this work, and told anew the trials of building railways across the Great American Desert, where was neither wood nor water for nearly three hundred miles, and where the laborers worked with guns strapped upon their backs ready to meet the savages that infested the plains and fought day by day to preserve them for the elk, antelope and buffalo that had so long made them their ahode. And how the embankments and the cuts these laborers had made had been suddenly converted into rifle-pits and forts, when the red-skins, horsed upon fleet, hardy and well trained ponies, and without sign or warning, stealthily assailed these heroic sons of toil.

We read, too, of the capture of wagon trains of provisions, the stampeding of all the cattle and horses appropriated for this work, in a single night; and of ties burned after they had been hauled upon the track from a point distant an hundred miles, and even when the iron was spiked down, of the track being torn up, and the locomotive obstructed; and of

murders and scalping, and all sorts of savage atrocities.

The story is true, every word of it, and there is much more that could be said upon the trials and sufferings of this band of brave men who thus faced these dangers, and of the managers of this great work, who, nothing daunted by all the calamities that befell it, pushed ahead, bore down all obstacles, and finally triumphed.

This is a very different matter from building railroads in our older States, where settlements are thick, the country well developed, provisions and all sorts of supplies abundant, and with the security of order and law. Such works follow civilization, and are productive of great public good. But the impatient and energetic American can't wait for this slow process of settlement and development. Our vast domain would require a century or more before it would be settled, hence he anticipates, and with characteristic boldness carries the railway first into the country, instead of last, and makes it the *avant courier* of civilization instead of its conclusion; invites settlement where otherwise it would not go, develops resources, and organizes communities, stimulates industry, and peoples states, with a celerity that astonishes the world, and himself too, and builds up a nation in less time than some people would require to erect a church.

There is no other nation where such experiments have been tried, and there is not one instance of failure in all that has been made here. Wherever the railway has been carried, there have gone the people, and there have they converted the barren waste or the forest into productive acres, and built up active, thriving and opulent communities. Fertile lands off such thoroughfares have been passed by for those less so upon or near them, and sections of our country abounding with the finest timber and an abundance of the purest water, but without the vivifying influence of railways, are left for the open prairie and the waterless plains that are, by these iron bands, in contact with the rest of mankind.

And in this they are quite right. We might cite a number of examples, but they are so notorious as not to require this at our hands, and we need do no more than ask any one to compare the salable value of lands of ordinary or even poor quality, and their products, that are affected by a railway, with those of the highest fertility that are not so blessed. The balance will be found so largely in favor of the former as to put all doubt at rest.

This is the great and unanswerable argument that has prompted the government to make such munificent grants in aid of these improvements, and induced the association of capital and skill to construct them amid the obstacles and perils we have spoken of. And whatever may be said about squandering the public domain, or building up monopolies

and bloated corporations, by partisan leaders in their huncombe resolutions and clap-trap harangues to the dear people, the policy is a wise one, warranted by enlightened statesmanship and the national spirit of enterprise, and in spite of all the corruption that has characterized most of such undertakings, fraught with incalculable good to the local interests as well as to the common weal.

Private enterprises that will clear the country of the red men, reclaim it from the wild beasts that infest it, convey therein a daring, brave and industrious population, carry to them the means of support until they become self sustaining, supplying a market for their products, growing with their growth, and strengthening with their strength, creates such enormous values where none, comparatively, existed before, and promotes human happiness to so great an extent that their importance is beyond the possibility of estimate, and they loom up so high above the frauds and iniquities that are frequently attached to them in their origin and progress, that inquiry is avoided, and the perpetrators go unwhipt of justice into well merited obscurity.

We have digressed thus in this line of thinking, because just now attempts are being made to direct the public mind against the contributions we are defending, and a strange alarm is excited, in the minds of red hot partizan leaders principally, for fear the government domain will be frittered away, the country thereby impoverished, and great, rich and overruling corporations crush the liberties of the people. All this may be good demagoguery, but it is too narrow and contracted and too brazenly false to last long, or materially benefit the men who originate the scheme or the party that adopts it.

That there are great reforms requisite in such legislation as contributes any part of the public property for railway construction, admits of no doubt. The whole system up to this time is fearfully defective, and before any further such measures are had, it ought to be thoroughly overhauled, and such good wholesome changes effected as the experience of the country in such matters proves necessary, for the faithful appropriation of the gratuity, the proper location and construction of the work, and the utter discomfiture of that horde of leeches and hangers-on, that, under one name and another, and under one pretext and another, suck the very life out of the best of undertakings, and inaugurate a state of things about them that almost inevitably concludes in the fraud and corruption so bitterly complained of.

These are the reforms that the people should demand, nor cease until they are secured, and not attack a principle wholesome in and of itself, and of easy and certain operation, and capable of yielding the valuable results we have claimed for it, if neither thwarted nor checked.

The completion of the Kansas Pacific Rail-

way to Denver City, the point from which a system of mountain railways of the Festiniog style is projected, and where its San Francisco connection is made via Cheyenne and the Union Pacific road, was an event that gave rise to a formal opening of the line to that point by a grand excursion party, leaving Kansas city on the first of the present month. All things considered, this was perhaps the grandest undertaking of the kind ever attempted in this or any other country. In the cost and magnificence of the train—in the abundance and elegance of the supplies—in distinguished and representative character of the guests—in the general management of the whole transaction and the universal satisfaction, indeed, we may say delight, of all the parties concerned, it was an unusual, if not an unparalleled success.

It was an ovation from the beginning to the end, in which the people participated in all the towns upon the line of the road, and upon the line of our visit into the mountains, a universal expression of satisfaction in the achievement of so great a work, and a public recognition of its value and importance.

The details of this grand tour were flashed upon the wires from point in its progress, and were heralded in the daily press in nearly every part of the country, and more than a hundred letters have been published about it, written by appreciative parties under the inspiration of the occasion. We shall not, therefore, attempt a description, but content ourselves with comments fitting to the style and character of our journal.

The line of this road, it will be remembered, is placed upon the 39th parallel, to the 105th meridian, a line central to a belt of country the most productive in the continent, and including in its area more of the great cities of the interior, the greatest diversity of industrial resources, and prospectively as dense a population as any section of equal extent in the whole country. In this respect the location is a fortunate one, and will not be equaled by any of the Pacific roads either made or projected. This is an advantage of great importance, and other things being equal, must leave this line when completed first in consequence and production of the transcontinental thoroughfares.

The line from the western limit of what may be called the Missouri bottom, that fertile plateau that extends from the Missouri to the rise of ground that defines the plains, passes across the "Great American Desert," a distance of upward of three hundred miles, and without any conclusive indications yet, that it will ever be more than a desert, requiring even the conveyance of food there to sustain the attendants upon the road, and the herdsmen who may drive cattle from the great grazing grounds of Texas to the nearest point upon this road for shipment east.

One of the most interesting questions that suggests itself to the intelligent tourists upon

this road, is whether this immense tract of land must forever be given over to the growth of buffalo grass and parched innutritious herbage, and remain a waste, a mere passage way for this great railroad, or whether science and capital may not be able to convert into blooming fields and the support of a dense population.

The managers of the railway are evidently of the opinion that great changes for the better can be effected, as they have secured the services of a Mr. Elliott, whom they style an Industrial agent, and who brings to his labors scientific attainments upon such subjects, and the most untiring industry and zeal. His experiments thus far show that the arid earth of these plains is susceptible to such changes by culture as to produce a dwarfed vegetation, and from the trials that have been made, though not yet very extensive, it is evident that by irrigation a high fertility may be obtained, and that trees may be grown and rich harvests raised, and this dread desert converted into a rich blessing, and made to

"Bloom and blossom as the rose."

The experiment is certainly warranted upon a more extended scale than anything of the sort yet attempted. We believe such a work in an engineering point of view is feasible, and that the cost will be quite trifling compared with the great benefits it will secure.

From the snow clad peaks of those great mountains that bound these plains upon the west, pour incessantly crystal streams, that course down the mountain sides, gather in the valleys, and whirl and gurgle in the stony beds of brooks and creeks, and leap from rocky cliffs, on their way to this great desert, where they are partly swallowed up in quicksands and flow in subterranean channels, absolutely lost, producing no visible good to man or beast.

How natural is the suggestion to center these streams, before they find their sandy graves, into an artificial channel, and carry them out into the open plains, filling up the depressions with pure water, and forming a chain of charming lakes, supplied from living fountains, that would make the country beautifully picturesque, stimulate vegetation, and invite settlements, and sustain an opulent and intelligent community.

Such changes in the physical condition of this section of the country will be apt to produce desirable climatic variations. The clouds that come over the mountain tops freighted with showers, and that now carry them across the great desert and pour them upon the Missouri bottoms, may be induced to leave part of their precious burden on the way. The accumulation of bodies of water, or the growth of forests, or large areas of rank vegetation, is known, and scientifically understood, to call forth copious showers from the clouds, that otherwise would have passed away thin

and feeble, scarcely shadowing for a moment the sun's fierce rays.

What a glorious achievement this would be! How inspiring the very thought! The waters of the barren, stone clad mountains made to clothe these ashy plains with verdure. The heavens paying rich tribute to the energy, skill and genius of America. The Great American Desert redeemed.

The returns that await the completion of this work are so vast as to be incalculable, and yet they are so certain that the undertaking is not a speculative one. It is but a repetition, upon a grander scale, of a number of experiments made near the foot hills of the Rocky range, and upon the margin of the Platte river, and that are undoubted successes.

Such a work ought to be done by the proprietors of the land to be benefited by it. They will be the primary and perhaps the largest beneficiaries of such a scheme. And as the Government is the joint owner with the railway company of a belt of land parallel to the road of forty miles in width, and sole owner of hundreds of square miles contiguous to it, a co-operative movement with the railway company ought to be cheerfully encouraged to test this important question, and place its solution at rest.

Suppose the Government, for a preliminary experiment, should grant to the railway company, upon whom would devolve all the labor and original outlay, two or three townships of its reserved lands; or covenant with the company that at any time within a reasonable period they might have the exclusive right to purchase the Government's interest affected by such an improvement, at the present maximum price, or should approve of any other plan that would encourage the scheme, and secure the equitable division of its costs: what a trifling contribution it would be. Certainly, it seems to us, no one at all intelligent upon the subject, or with a desire for the prosperity of so important a section of the great west, can interpose the least objection, nor shall we believe otherwise until the request is judiciously made and absolutely refused.

We have already intimated that this great railway line is to have feeders of the thirty six inch gauge leading into the Rocky mountains, spreading out like the fingers of the human hand, so as to supply the wants of the mining interests and the business demands of that wonderful section of the country. When this system of narrow gauge lines is completed, it will add immensely to the traffic of the main stem, and doubtless place its receipts up to a productive standard. But it must have an independent line to the Pacific coast. Without such a connection it is incomplete, and falls short of the demands of the country and the purposes of its projectors.

The managers appreciate this, and have had most thorough surveys made, under the

supervision of General Palmer and Colonel Greenwood, of the various routes found by the 32d and 35th parallels. These passes are all practicable, and through sections of the country naturally productive, well supplied with wood and water, and capable of yielding a large local traffic to the road. They are but sparsely settled, and subject therefore to all the advantages that are given to other lands similarly situated, by so valuable an enterprise.

With a line thus extended to San Francisco, and an arm resting at San Diego, as is contemplated in the conclusion of this great work, what a magnificent route this will be for both local and through business. The day of the completion of the road will yield it a productive trade, and as the country it is intended to supply feels its vivifying influence, and is stimulated to supply its rich and varied products, the full capacity of this great thoroughfare will be in command, and the predictions of its most ardent friends be more than realized.

There should be as little delay as possible, for the good of all the interests concerned, in the completion of this Pacific extension. Again the principle we have laid down, that the beneficiaries should contribute to its success, applies; hence the Government should grant a share of the public domain along the line of this work to aid its completion, and not allow it to languish for the support it can so easily give it. Whatever may be the policy of the country hereafter in granting lands to new projects, those that were begun under its encouragement, and that have made such large progress through its protection and support as this one has, should be the subjects of especial interest and carried through, that it may be productive of its largest and best results.

The managers of this work are certainly entitled to the confidence of the Government. In their comprehension of its importance they have shown themselves intelligent upon all that pertains to it; in their personal sacrifices and large pecuniary advances they have registered their faith in the value of the undertaking, and in their energy and zeal in surmounting the formidable obstacles that confronted them in the progress of the work from the Missouri river to the Platte, they have exhibited that rare capacity that finds boundless resources in the midst of the worst discouragements, and is a synonym for success.

BEST BOOK FOR EVERYBODY.—The new illustrated edition of Webster's Dictionary, containing three thousand engravings, is the best book for everybody that the press has produced in the present century, and should be regarded as indispensable to the well regulated home, reading room, library, and place of business. —*Golden Era.*

Fulton—Texas.

We were highly gratified the other day at receiving a photograph of the residence of our old friend, George W. Fulton, Esq. Mr. Fulton is well remembered by our citizens as, for many years, the intelligent and efficient Superintendent of the Kentucky Central Railroad. Mr. Fulton, in early life, took an active part in the war that secured to Texas her independence, and to the United States one of the brightest stars upon the ground of blue. He married a daughter of Governor Smith, the first governor of Texas, and became possessed of large tracts of land in different portions of the State, some of the most valuable of which are situated on the coast at Aransas Bay. Shortly after the close of the war, Mr. F. returned to Baltimore, where he engaged in his profession of civil engineer. We believe he was connected with the Baltimore & Ohio Railroad, and afterward in the construction and operation of the Central Ohio Railroad; and finally became connected with the Kentucky Central. He is a brother of C. W. Fulton, Esq., the well known editor of the Baltimore *American*, whose correspondence from the army attracted so much attention during the late rebellion.

About two years ago, Mr. F. secured a final adjudication confirming his title to the vast tracts of land above referred to; this determined him to immediately remove to his present home, the scene of his early struggles for freedom and liberty, where he had fought side by side with Houston, Crockett, Fannin, and a host of others. His property bounds Aransas Bay, the best harbor on the entire Texas coast, is free from malaria, hence exempt from yellow fever, and is the best shipping point for the vast storehouse of Texas slaughtered beef. The two or three counties surrounding this port contain cattle enough to feed the nation.

We trust the town of Fulton will grow, and that Mr. F. may long live to see its prosperity, and be at least partially instrumental in reducing the price of beef to the eating millions of the old States.

A Good Move.

The Agricultural Society of the State of Georgia hold their Sixteenth Annual Fair at Atlanta, commencing on the 19th of next month.

Preparations have been made upon a gigantic scale, so as to entertain in the best of style one hundred thousand guests.

The usual attractions of large premiums are offered, and the railway companies have reduced the rates of passage, so that a visit may be made to this splendid exhibition, and the beautiful city of Atlanta, for a comparatively small outlay.

The remarkable, or perhaps we ought to say, unusual and unexpected, feature of this occasion, is the cordial invitation extended to the people of the North, East, and West, to attend these festivities, and to vie with their Southern brethren in the display of such articles of home production as their skill and respective localities can supply.

The Georgia State Agricultural Society, at a conference in which over one hundred counties were represented, unanimously adopted the following preamble and resolution:

WHEREAS, The Fair to be held in Atlanta during the month of October, 1870, is intended to be a grand exhibition of American industry; and

WHEREAS, Said exhibition will be held under the immediate control and supervision of the Georgia State Agricultural Society; therefore be it

Resolved, That we, the delegates and representatives to the Georgia State Agricultural Society assembled, do hereby extend to our fellow citizens of the North, East and West a cordial invitation to meet their brethren of the South at said Fair, to exchange friendly greetings, to exhibit stock, agricultural implements and other articles of home industry, and thus promote the material interests of all sections.

Well done! we involuntarily exclaim. This is the kind of rivalry we like to see between the great sections of the country, and this the kind of spirit to invoke it.

Here is one of the finest, perhaps the very best of opportunities for our artisans and agriculturists of the North, East and West to show what they can produce, and to learn whether the South is not advancing upon them with rapid strides, if not already equal to them.

We trust many of our Northern citizens will accept this opportunity, and be there with their stock, and become acquainted with one of the most important sections of our whole country, and with a people who have so generously extended them the warm hand of good fellow-ship.

How They do Things in Georgia.

An immense and most beautiful hotel, known as the "H. I. Kimball House," is just finished in Atlanta, Georgia. It contains 317 rooms of an elegant and commodious character, exclusive of stores and offices. It is in dimensions, 210 feet front by 163 feet deep, and six stories high.

The lot upon which this grand edifice stands was purchased by Mr. Kimball on the 26th day of March, 1870, on the 28th ground was broken for this improvement, and it is now so far advanced that it will be formally opened and ready for its full capacity of guests on the 16th day of October next.

This speaks volumes for our Southern brethren, and for Atlanta in particular. We wish them all God speed.

Opening Excursion of the Kansas Pacific Railway.

RESOLUTIONS ADOPTED BY THE EXCURSIONISTS,
SEPT. 9, 1870.

Before the separation of the Excursionists for their various destinations, a general meeting of the members of the party was held in the saloon car "Hannibal," for the purpose of giving formal expression to the warm appreciation, which all felt, of the efforts made to render pleasant and profitable the entire trip of ten days. On motion of I. W. England, Publisher of the New York Sun, Hon. J. A. J. Creswell, of Washington, Post Master General of the United States, was elected Chairman of the meeting; and on motion of A. J. Hodder, of Cincinnati, D. C. Brooks, Editor of the Chicago Railway Review, was appointed Secretary. Dr. E. Morwitz, Editor German Democrat, Philadelphia, after complimenting the management of the Kansas Pacific Railway in a pleasant and forcible manner, moved the appointing of a Committee to prepare appropriate resolutions, to be submitted at a meeting to be held in the evening. In accordance with the general sense of the party, it was suggested that the committee, consisting of thirteen, should be composed of representatives of the various interests and localities from which the party had been gathered. The Chairman accordingly appointed as the Committee:

Dr. E. Morwitz, German Democrat, Phila.; I. W. England, Publisher New York Sun; Wm. Prescott Smith, Gen'l Manager New York and Washington Through Line, Baltimore, Md.; Hon. John Forsythe, Mobile Register; F. E. Goodrich, Boston Post; A. J. Hodder, Railroad Record, Cincinnati; J. T. Ely, Secretary to President Grant; N. M. Woods, Missouri Republican; J. B. Mitchell, of J. B. Lippincott & Co., Philadelphia; J. L. Griswold, Gen'l Supt Ohio and Mississippi Railroad; S. H. Gay, Managing Editor Chicago Tribune; J. W. Forney, Jr., Philadelphia Press; F. Key Howard, Baltimore Gazette.

On reassembling, the Committee, through S. H. Gay, reported the following resolutions, which were adopted with unanimity and enthusiasm.

Whereas, The guests of the Kansas Pacific Railway Company, on the excursion which started from St. Louis on the 30th ulto., desire to offer some expression of their appreciation of the ten days which it has been their good fortune to make upon the Company's road through Kansas and Colorado Territory, therefore

Resolved, That we can not withhold our admiration of the perfect construction and management of a road seven hundred and fifty miles in length, built through a wilderness, exposed, at that time, to constant interruption from savages, and without any of the ordinary aid which nature, almost everywhere else in this country offers to the building of railroads; and that we frankly and freely de-

clare that in our opinion, formed from careful observation, there is no road more excellent in the United States; and that this long route through the wilderness, now redeemed from savage occupation and opened to civilized settlement, which has already begun to enter upon it, is as safe to travel as the road to Boston Common or New York Central Park.

Resolved, That we can conceive of no enterprise more important to the welfare of the Great West and consequently to that of the whole country, than that which has thus been inaugurated by the energies and zeal of the Kansas Pacific Railroad Company.

Resolved, That as individuals we can not refrain from acknowledging the sense of personal obligation we all feel, not only for the kindness and attention we have experienced through the whole tour, but for the incessant and unwearied care which the officers of the Kansas Pacific road and the officers of the National Land Company have taken, to give us a full comprehension of the ends and aims of opening this new route to the Pacific and the Southwest, and of the vast resources, mineral and agricultural, of the Territory of Colorado.

Resolved, That we owe it to the Kansas Pacific Railway Company, that it has given us new recollections and associations and stores of knowledge which we can not fail to cherish and recall with pleasure for the remainder of our lives.

Resolved, That with our faces turned homeward we send back a hearty greeting to our friends of Denver, whose warm kindness, big as their majestic mountains, we shall never forget, and who so fitly closed the celebration of the opening of the road by a banquet, and that we include in this greeting those all along the road at Kansas City, Leavenworth, Lawrence, Topeka and elsewhere, who turned out to greet us; and that more eloquent than any words is that which we have seen—hamlets, centers of busy industries; villages springing into life with Eastern enterprise; cities, built by energy, emulating the East, on the verge of the prairie where the guest looks upward over mountain ranges to that Great West whose possibilities are certain, whose future is swift, and whose present is thick with indications not only of the good time coming, but of the good time already come.

Resolved, That while the capitalists of the East and West who risked their means in starting this enterprise and pushing it to early completion, deserve praise for their foresight, enterprise and sacrifices, we are glad to observe that the practical operation of the line is in the hands of most efficient and excellent officers from Superintendent A. Anderson, and his worthy assistant, Col. Noble, to those in the humblest capacity, as shown by the order and regularity witnessed by us at all points on their extended line.

Resolved, That the Kansas Pacific Railway is not only a continuation westward from the Missouri river of the system of railways that leaves the seaboard at New York, Baltimore and Philadelphia, through Cincinnati, Indianapolis and St. Louis, but at Kansas City and Leavenworth, the great northern lines of the Lake system, joining it from Chicago, afford it the most general and varied connections with the East.

Resolved, That the success of the Kansas Pacific Railway, being dependent, in great measure, on the rapid development of the country it traverses, seems to be strongly

aided by the plans and the conduct of its energetic adjunct, the National Land Company, which announces such admirable provision for the transportation and settlement of emigrants on the rich lands of Kansas and Colorado.

Resolved, That the Pullman Palace Car Company have shown in this excursion, as in others, that the difficulties and discomforts of railway locomotion are things of the past. In their spacious and elegantly appointed train we have enjoyed all the comforts and conveniences of a home, while traveling over the plains of Kansas and Colorado. It is due to the Pullman Palace Car Company that railways are thus enabled to carry passengers in a way known nowhere else in the world. It is through the efficiency of its organization only, that such excursions as this we have just made are possible, by which a first class hotel is ready at a day's notice to be put upon wheels and moved from Chicago to any part of the country at a call of the railway companies.

Resolved, That our thanks are due and heartily tendered to the Western Union Telegraph Company, which liberally opened its lines to us for social and family messages and dispatched to us at all available points along the route, the most important news of the day from all parts of the country.

Letters expressive of regret at the necessity of absence, and of hearty well wishes for the success of the Kansas Pacific Railway, were read from Gen. W. T. Sherman, Hon. William W. Belknap, Secretary of War of the United States, Hon. J. D. Cox, Secretary of the Interior, Wm. Orton, Esq., President of the Western Union Telegraph Company, Hon. Schuyler Colfax, Vice President of the United States, Jay Gould, Esq., President of the New York and Erie Railway Co., W. D. Griswold, President Ohio and Mississippi Railway Co., Hon. John Sherman, United States Senator from Ohio, John King, Jr., Vice President of the Baltimore and Ohio Railroad, J. Edgar Thomson, President Pennsylvania Railroad Co., Oliver Ames, President; and John Duff, Vice President of the Union Pacific R. R. Co., William H. Gatzmer, President Camden and Amboy R. R. Co., C. P. Huntington, Vice President, and A. N. Towner, General Superintendent of the Central Pacific R. R. Co., of California, A. D. Dennis, President New Jersey Railroad and Transportation Co., Samuel L. Clemens (Mark Twain) of Buffalo and Hon. Nathan Cole, Mayor of St. Louis, and many others.

(Signed) J. A. J. CRESWELL, *Chairman*,

D. C. Brooks, *Secretary*.

BALTIMORE AND OHIO RAILROAD.—On the completion of the Parkersburg bridge this fall, the company will have eighteen Pullman sleeping cars running between Cincinnati and Baltimore. Great improvements are being made in the road as well as rolling stock, and the line will soon offer the best accommodations to travelers. The business on the Lake Erie Division is very large, and the completion of the bridge at Bellaire will soon give better facilities for moving it through to Baltimore. At the latter city the company is adding to its

already extensive transfer facilities by the construction of a large grain elevator on Locust Point, where it has large docks. It has also recently purchased extensive depot grounds in what is known as the "packing district" in Baltimore, which will enable it to dispense with much of the hauling of freight cars by horses over the heavy grades in that city. The Marietta and Cincinnati line is being rapidly brought up to first-class condition, and the preliminary steps have been taken for the location of the Pittsburg and Chicago line. Much interest is manifested concerning this line, especially in Ohio. A survey has been commenced of a branch from Belpre, opposite Parkersburg, north west, so as to make a direct connection with the Marietta and Cincinnati road, and avoid the circuit by way of Marietta. It will save about twenty miles.

The Preservation of Timber.

No matter how timber is seasoned, it is likely to absorb moisture, though not so apt to retain it or be injured by it. Among means of promoting absorption the most common is painting; and where ornament as well as use is desired, no better means can be adopted than the usual oils and pigments. But there are circumstances where it would be unprofitable to paint with such substances, or where they would be almost useless. Hence science and ingenuity have been tasked to preserve timber. Although we seem to be reaching a perfection in this art not known for centuries, yet we are even now possessed of no greater knowledge than that of the Egyptians ages ago.

The theory of the decay of timber involves a large series of chemical terms, and calculations of probabilities and possibilities. The practical part is that we know timber is composed of hard and soft rings. The soft rings absorb moisture, are thus rendered liable to oxidize, and oxidation produces rot.—There is another species of decay called "dry rot," caused by acids left in the wood. That is simply a result of the use of unseasoned wood. Here, too, is a strange scientific paradox. Wood, even if not fully seasoned, is not so liable to decay if it be exposed to a current of air. As this soft ring is the primary cause of decay, it becomes necessary to fill it with some fluid that will keep off the moisture, and at the same time coagulate any albuminous matter or neutralize any acid therein. Coal tar has been largely used to accomplish this end. It contains large quantities of carbolic acid. This acid has the power of coagulating all albuminous matters, of preventing oxidation and destroying insect life. Hence its value. In using it, the timber should be well seasoned, dried, and put into the heated tar.

It is folly to dip posts only the length they go in the ground and not at all above. Decay usually commences close to the earth. Dip them the whole length, or for 10 inches above the ground, paint above that for the entire height, and be sure to paint the top. Next to coal tar in value and cheapness is lime. Season posts, or other timber, and soak in hot milk of lime—that is, burnt lime and water—then paint thoroughly. The Pacific Railroad Company used chloride of zinc for their ties. They bought the common zinc oxide, dissolved in weak muriatic acid, and then weakened the solution more in water. The ties were first seasoned in a steam-chest, then plunged into a heated bath of this solution of zinc. This preparation is too costly for the farmer.

Whitman's Improved Railway Sleeper.

In January last we noticed incidentally a device invented by Mr. F. H. Whitman, of Portland, Me., whereby the "life" of common railway sleepers or cross-ties could be very much increased—double or quadrupled—with but slight additional expense. At the time we had not seen the improved cross-tie in use, but since then, have had an opportunity of inspecting quite a number of them that have been in use on the Portland, Saco and Portsmouth track for some year and a half. Those put on this road were for experimental purposes only, and, therefore, only one end of each cross-tie was fitted with Mr. Whitman's device, and the result has been that this trial has shown the value of the device in a very marked degree. The device represents a common white cedar cross-tie with sections of oak plank inserted, upon which the rails are to rest. The recesses in the cross-tie are cut both at once, by a very simple machine set to an accurate gauge, and therefore must be mathematically correct, so far as the line is concerned. The oak blocks are cut by gauge, with the grain of the wood running longitudinally with that of the tie, thus insuring a tight fit in every case and providing against any loosening from the shrinkage of the wood. At the same time the oak block is cut, the spike holes are bored through it, and everything is so adjusted that the most perfect accuracy of fit and of gauge is secured; and these requisites will attract the attention of the railway engineers and of the track masters as simplifying the work of track laying very much. Cross-ties subserve two purposes, namely: to hold the rails in gauge and give a fit bearing for the rails; but the duration of service in these two particulars is very widely different. The action of the wheels of the rolling stock soon drives the base of the rail through the upper surface of the tie, making the track uneven to such an extent that the tie has shortly to be replaced by another, while, as a mere tie, it would have lasted double or treble as long. Now the design of Mr. Whitman's device is to equalize the usefulness of the common cross-tie for both purposes, or rather to prolong its "life" as a bearing as long as it is of any value as a tie; and it has done this, besides securing other advantages of full as much importance. On the sections of the Portland, Saco and Portsmouth line to which we before referred, these oak blocks show hardly any sign of wear, while the other ends of the ties show the ordinary results; they are battered and broken down and the rails are out of plane, causing them to spring up and down considerably as the wheels pass. The block end of the ties has received no attention, not a spike has had to be driven down, while the other end, not so protected, has received the usual care and attention of the trackmen, and the spikes have had to be frequently driven home. The intelligent master mechanic of the line, Mr. Donnell, who has watched this experiment with close attention, verifies all our preconceived opinions as to the great practical value of the device, and he informs us that in consequence of the wider bearing given to the rail by the use of the blocks, at least two cross-ties can be saved in every length of the rail; and we have no doubt that this could be safely done on any road having rails of 4½ inches or 5 inches vertical depth of section. This experiment shows several important results; it shows that the common cross-tie can be made to last twice as long at least as it has done, and if chemically preserved from

climatic influences, it will undoubtedly last four times as long, because the wood does not crush down, and the spikes are not loosened, by the action of the wheels; then the device gives a broad and, what is still more important, an equal bearing of the rail on each tie, thus insuring greater steadiness and ease of movement to the trains; and a more equal wear of the rails, and a further step in the right direction will have been attained when railway engineers insist upon having cross-ties of equal length outside of the rail, or rather an equal amount of bearing surface of the tie upon the ballast per lineal running foot throughout. The use of this device likewise saves money and time, because with it there is no necessity for such frequent disturbance of the road bed for relaying the ties.

Railway managers often find great piles of sleepers that have been taken from the tracks and perfectly sound, with the exception that where the rail was laid they are crushed down and checked so that they will not hold the spikes. If these ties had originally been prepared with Mr. Whitman's device, they would have been in the track still, and doing good service. In these sections of country, where the more durable woods, like oak and chestnut, used for cross-ties, are so scarce and expensive, this plan must prove of great value. It makes it possible and practicable to use softer woods, with a certainty of long wear and a much reduced cost. Chemically preserving sleepers has gone very much out of use latterly, it being found that the largely increased weight of engines and trains crushed down the sleeper before it began to be affected by the elements; but with the aid of Mr. Whitman's device we think chemical preservation can be again resorted to with great profit. As long as the sleepers have strength enough to tie the rail securely, the oak blocks will preserve them from crushing or checking so that the spikes will hold securely; and even should the oak block finally become worn out or split it is a very easy, simple and inexpensive matter to replace it by a fresh one without any disturbance of the road-bed.

To prepare the ties, Mr. Whitman has two small strong and portable machines, driven by steam or horse power, and with these, three men can prepare from six to seven hundred ties in a day ready for placing in the track. These machines cost about three hundred dollars, are very simple, and can be readily worked by a common hand. Both machines only weigh about nine hundred pounds, and can be readily moved from any point where the power can be applied. From what we have seen of this device, we are compelled to regard it of much value and worthy of wide adoption and use. It must work a great saving in the cost and wear of cross-ties besides furnishing a better bearing for the rail. We learn that the new Portland and Ogdensburg road is being laid with ties, and we believe that they will be extensively used throughout the country as soon as their real usefulness becomes known.—*American Railway Times.*

MISSOURI PACIFIC R. R.—Since the inauguration of the new Directory, strenuous efforts have been directed toward securing a change in their Kansas leases which would inure more to the profit of the road. The *St. Louis Times* says for a time it seemed probable that the leases hitherto made with the Missouri River and Leavenworth, Atchison and Northwestern roads would terminate in the abandonment of the roads by the Pacific; but after frequent

consultations a new basis of agreement has been determined upon, which settles all past disputes, and grants to each of the roads equitable pro-rating terms.

The new arrangement gives to the Pacific road the entire and absolute control of the Kansas roads, freed entirely from all obligations and concessions to other corporations, the former leases to be treated as nullities, and the latter leases to date from January 1st, 1870, the same as if put in force at that time.

A reduction of the rental is also secured, amounting to fully \$40,000 per annum, or an aggregate during 20 years, the term of the lease, of \$800,000. The Missouri River road is now leased for \$50,000, a reduction of \$17,500 per annum, free from any restrictions, and the lease of the Leavenworth and Atchison road, which involved a payment by the Missouri Pacific of \$59,000 for the first five years, increasing each succeeding five years \$60,000, \$70,000 and \$80,000, is also greatly reduced. The Pacific has also had granted to it absolute control.

Flexibility and Elasticity.

It is rather a hard thing to make some railway mechanics believe that rolling stock is benefited by giving it an elastic and flexible character. They all seem to know that springs are necessary on cars and engines: but then a spring is a spring, and when one has been put on, the last thing that is thought about is whether or no it fulfills the real object for which a spring is required. Thus you may find one engine runs with a succession of hard, rough, shaking motions; while another goes along with an easy gliding movement, that is not only very easy and pleasant, but is at the same time very economical, so far as the wear is concerned, both of the engine and the track. Some engines and cars run as though the brake was in constant use on them, while others slide as smoothly as though the wheels were sleigh runners upon an oily platform or other smooth way. This difference all comes from the means taken to secure the requisite degree of elasticity. It does not follow that the more elasticity given the easier the movement; it is the skillful adaptation of the elastic principle to secure the right movement. And this depends a great deal upon the men who have charge of construction and repairs. There is no exact formula that will give the right degree of elasticity even to engines of the same weight and class; a great deal depends upon the skill and discretion of the men in charge, and the possession of this skill and discretion is so important, that the possession or non possession of it often makes a difference of several cents per hundred miles in the repair expenses. A master mechanic who is fit for his business should be capable of seeing all these matters at a glance, and of rectifying all that is shown wrong after the first trial trip; and if he is a good judge of the qualities of the men as he ought to be of machinery, he will be likely to keep the expenses per mile of operation down to a reasonable figure. If a new engine is brought upon the road, and, as is often found, is "hard on the track," a capable mechanic will soon know what the trouble is and how to rectify it, and this applies to cars of every kind as well as engines. But applying the requisite degree of elasticity to rolling stock is not all that is required to keep the repair and operating expenses within a reasonable figure. Elasticity must be given to the track, and here skill and discretion are of just as much value as in the machinery department. The "permanent" way is not

secured by laying rails on stone sleepers, or other material hard and inelastic, as Brunel thought; in fact, such a track is the easiest to knock to pieces that there is. The more solid the substructure the worse it is, unless some slightly elastic medium is interposed between it and the rail, and so in modern practice success has only been achieved by a skillful adaption of this elastic principle. The devices for this are numerous: chairs with cushions of wood, rubber, or felt are used, and with good success just in proportion to the skill employed in their use. What is wanted is just enough elasticity to absorb the shock of the driving wheel, so that it shall not hammer itself and the rail to pieces; it is merely putting the tan-heap under the anvil. The improved sleeper which we have illustrated in another column answers this purpose well. The sawed oak slab inserted in the sleeper secures a sort of air cushion to take up the blows of passing wheels, while it does not give spring enough to disturb the hold of the spikes. It acts like the frog in the foot of a horse, or the cartilage in his knee. We shall never succeed in getting the best results in railway machinery without we take advantage of these simple lessons from nature.

There are other destructive forces in railway operations which it is necessary to guard against. Modern engineering has introduced into the railway, curves of very sharp radius. These are at all times objectionable, and very destructive to the rolling stock, unless there are devices formed for preventing the ill effects. Thus, instead of using rolling stock with a long rigid wheel base, we borrow from nature again, and the rolling stock is vertebrated, like the spinal column, and capable of winding through sharp curves without hard abrasion of the wheel against the rail, thus saving the torsion of axles, the breaking of wheels and rails, and the straining of engine frames. The swing beam for cars, Fairlie's engine, Bissell's engine truck, and his tender truck, and other devices of the same character, all show the tendency of modern and successful practice. These give flexibility to the rolling stock, while allowing a very long wheel base, and do not prevent entire steadiness of movement; in fact, we think they aid very materially in that respect. There are many master mechanics, however,—they are growing rapidly less in number though,—that still question the advisability of applying some of the most important of these devices, preferring the rigid wheel base with all its disturbing elements to the more simple, philosophical and natural practice which modern mechanical ingenuity has made practical in the best sense of the term.

The dislike to change or to add patterns to the machine shops, taken in connection with rusty prejudices, prevent the adoption of many useful and indispensable improvements. The history of every improvement in steam locomotion proves this; but still from year to year substantial progress is made, all in the interest of safety and economy.

Toledo claims eleven railroads as making that city their terminal point, and hopes through their instrumentality to become the largest inland city of the continent. The roads are: 1. The Toledo or Crestline, or Lexington. 2. The Toledo & Mansfield. 3. The Toledo & Pomeroy (Atlantic & Lake Erie). 4. The Toledo & Pittsburg (the Baltimore, Pittsburg & Chicago—an extension of the Baltimore & Ohio). 5. The Toledo & Belmont (Bellair to Toledo)—an extension of the

Baltimore & Ohio. 6. The Baltimore & Ohio and Lake Erie & Michigan Southern. 7. The Holly, Wayne & Monroe. 8. The Toledo, Ypsilanti & Saginaw (being an extension of Flint & Pere Marquette to Toledo). 9. The Toledo & Ann Arbor & Saginaw. 10. The Lansing & Toledo. 11. The Janesville, Albion & Lansing.

It is stated that a number of conductors on the different roads in the State hold commissions from the Governor, investing them with all the powers of policemen, to make arrests and quell disturbances when necessity requires. This will be a notable improvement to the comfort and convenience of the respectable portion of the traveling public, and will tend to suppress a number of petty annoyances to which passengers are at times subjected. Any refractory or turbulent rough or loafer can immediately be placed under arrest and disposed of at the stations along the road. The confidence men, too, will find their occupation gone, and will have to seek new fields of enterprise to exhibit their deft skill and unsurpassable impudence. This system should govern all roads throughout the country.—*Albany Journal*.

RAILROAD TIES WANTED.

OFFICE OF THE
CHESAPEAKE & OHIO R. R. CO.
54 William Street New York.

This Company are now ready to contract for Fire Hard Thousand

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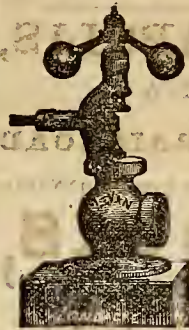
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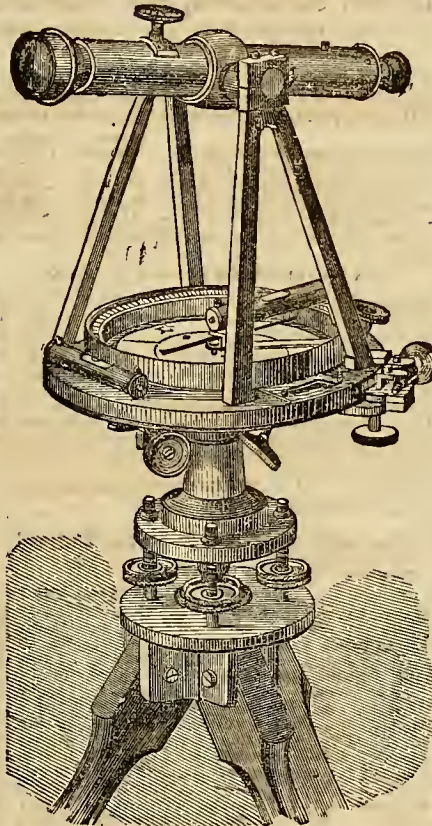
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6.19 P. M. (Supper); New York, 7.00

A. M. Connects at Mansfield with Pittsburg,

Ft. Wayne & Chicago Railway for Pittsburg,

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	Leave.	Arrive.
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St. Louis and Springfield Express....	2.40 pm	7.35 pm
*St. Louis and Springfield Express. 10.20 pm		3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.70 pm	8.25 pm

*The 10.20 pm. train will leave Sundays, but not on Sat-

urdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 pm

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway). 7:30 A. M.	6:30 P. M.	
do do do 9:45 P. M.	7:00 A. M.	
Toledo, Detroit & Canada..... 7:15 A. M.	10:25 P. M.	
do do do 6:30 P. M.	7:00 A. M.	
Lima Fort Wayne & Chicago... 7:15 A. M.	10:25 P. M.	
do do do 2:30 P. M.	5:40 P. M.	
do do do 6:30 P. M.	7:30 A. M.	
Sandusky, Cleveland & Buffalo... 7:15 A. M.	5:40 P. M.	
Springfield Accommodation... 2:30 P. M.	10:25 A. M.	
Sandusky, Cleveland & Buffalo... 6:30 P. M.	10:20 A. M.	
Muncie & Indianapolis.... 7:15 A. M.	10:25 P. M.	
do do do 5:40 P. M.	1:20 P. M.	
Hamilton, Eaton & Richmond... 7:15 A. M.	10:25 P. M.	
do do do 5:30 P. M.	10:20 A. M.	
Hamilton Accommodation..... 9:30 A. M.	8:25 A. M.	
do do do.....	6:50 A. M.	

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W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI**SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellsburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellsburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Ag't

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ALLENTOWN LINE TO THE WEST.

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FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Lids, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Saturdays) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:30, 3:45, 4:45, 4:15, 4.30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:10, 8:30, 9:00, 9:40, 10:15, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, THURSDAY, SEPTEMBER 22, 1870.

The Railroad Record,

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The Cincinnati and Springfield Road—Short Line.

We have been amused as well as interested in the "Short Line" scheme. There was something to be got which, if not an absolute necessity, was certainly of great interest to certain parties. But how have they pursued the object? They have acted exactly like a hunter after a squirrel on a tree. He begins to take aim, and the squirrel is on the other side. He moves round and gets a new sight, and the squirrel is gone again, and the hunter goes round too,—and so the game goes on. Whether the squirrel will be shot at all is the question. Some people think he will escape the hunter, or tire him out. People ask us will the road be made at all. We say, yes. Why? Because men act on motives, and railroad men particularly. There are strong motives for certain parties, who have ample abilities, to make a short and independent line of railroad from Cincinnati to Springfield. The general motives we have mentioned in former articles. There are few cities in the country which are natural railroad centers, not so much from any local merit of their own, but because they are gateways through which the trunk line roads must go. Cincinnati is one of these, both for a natural and artificial reason. The natural one is that all the great railroads, from New York and Boston through the entire West must go through Ohio. Having got to Ohio they can not turn

off to the South-west till they get to Cincinnati, and they can not do it so well, and on so short a route, beyond Cincinnati. This is the natural reason for coming to Cincinnati. But it has been strengthened and made decisive by a recent artificial cause. The railroad bridge over the Ohio, now building, and the earnest and soon to be successful effort to make the "Southern road," and the actual making of the "Short Line Louisville road" to Louisville have made it certain that the shortest and best route to Memphis, Nashville, and the South-west is through Cincinnati. Hence, it is decided that the great trunk lines must go through Cincinnati to the South-west, for it is not possible to make any route to the South-west to New York and Philadelphia, through Indiana and Illinois, as direct and good as this. The South-west (Tennessee, Mississippi, Arkansas, &c.) is a fertile country, with the Mississippi for its base. Slavery, which alone kept it back, is destroyed. A revival of industry has taken place, and the South-west will now grow up, as the North-west has done. Its trade is a grand prize. The Pennsylvania Railroad Company has seen this, and quietly taken the means to secure that trade for itself. They bought the Pan Handle road, and they bought the Little Miami. They have liens on the Louisville Road, and they are building a great railway bridge over the Ohio. Any one can see where all this will end. Leave that company without compensation from other railroad lines, and they will get the whole railroad traffic of the South-west with New York and Boston. The other roads do see it. The Baltimore Company have come to Cincinnati on a very expensive route. The Erie road comes by Dayton; but where is the New York Central? For some time the managers of that concern tried to ignore the matter. To go to Chicago was enough. This South-western trade was not much of a shower, and Cincinnati was not much of a place. But that was a sham. It is impossible not to know that fifteen years ago the New York Central had almost the whole railroad traffic of Cincinnati to the East, and that, as matters are now shaping themselves, it won't have any. That road can no doubt do very well with the Lake trade, but it might do a great deal better with part of the trade of the South-west. It is not willing to lose that advantage, and hence, will certainly make an effort to share in the trade of Cincinnati and the South-west. That is a good reason for the New York Central; but there is another road more deeply interested than that in the matter. This is the Columbus and Cleveland road. Twelve years ago this road was a trunk road between Cincinnati and the East. It had scarcely any competition. Now the Atlantic and Erie has taken off half of its traffic in Central and the Pan Handle route has taken most of the remainder. What is to be done? Now, there is no way for these great corporations

(the Central and the Cleveland) to regain their trade with Cincinnati and the South-west but *by a direct independent line of their own into the city*. But this is to be a costly affair, so they sought at first to get allies; and they got the Lake Shore and the Sandusky roads to join in the enterprise. But it was apparent from the beginning that it was more against than for the interests of the Sandusky road; so that arrangement broke up. The squirrel dodged round the tree, and the hunter has to move too. Will he succeed? Certainly, we think; for he will get no supper if he don't. In one word, there is no getting into Cincinnati, or sharing in the trade of the South-west for the New York Central and the Cleveland road, unless they get an independent line. They can give the enterprise up and be contented with the Lake trade, it is true. But this they will not be contented to do. So we think they will go on; and we may consider the Cincinnati and Springfield line as a thing about to be done.

Well, we now get to two very practical considerations. What route will be adopted? and then in what way will they get into the city? We understand that engineers are now surveying, in order to determine the route. In a case like this we think the nearest to a *straight line* is the best, if there be no great obstacles; and in this case we think it will be the cheapest. Supposing we could draw a straight line from Springfield to Cincinnati it would pass about three miles west of Xenia, precisely through Lebanon and Reading, and would be just 70 miles in length. But a little variation from this (not enough to make a material difference in distance) will be of great advantage to the traffic of the new road; for in order to draw local trade it should be between two other roads. Hence, it should go a little west by Harbina, near Ridgeville, through Lebanon and Sharon. This would not increase the length of the road more than a mile or two, and would enable it to command a large local traffic. There is little doubt the engineers will find this the best route.

And now comes the next question. Where will it come into the city? This road will gain from 12 to 14 miles in distance between Cincinnati and Springfield, and if that be of great importance, as it is, it is equally important not to lose the advantage of it in coming into the city. We hold that a monstrous blunder has already been committed by the Baltimore road. Why repeat it? The Baltimore road, we believe, has paid more to get from Spring Grove into the city than would have been necessary to make the tunnel. Suppose this true, what is the difference? It is great. They have lost nearly half an hour in getting into the city; and this is the case with all the roads entering the city. Let the new road avail itself of this blunder, to their own advantage. Let it go through the tunnel, and save between Cincinnati and Spring-

field full an hour in time, half an hour in distance, and half an hour by the tunnel, and the Central will successfully compete for its full share of business with Cincinnati and the South-west.

The Everlasting Short Line.

Hon. Rns R. Sloan, President of the Cincinnati Sandusky, and Cleveland Railroad, made us a short call this week, and gave us a most satisfactory explanation of the causes that led his company to withdraw from the coalition that was formed at Sandusky some time since, to build the old short line railway from this city to Dayton.

All the rumors that have been on the wing since the news was flashed upon the wires that the work was abandoned, are far from the facts. The Sandusky company were justified in the course they pursued, and no feints, or bluff games, or pretentious schemes will drive Judge Sloan from the position he has assumed in this matter.

This Short Line scheme, one of the most valuable in the whole State, and one that is sooner or later sure to be made, has been the foot-hall for the great railway companies that lead into this valley from the North, as well as the two or three companies that make connections from that direction with this city.

But however it may be turned over and knocked about by these corporation gymnasts it always comes upon its feet again, and lifting its head higher than ever, attracts the public eye and "still lives." Like Banquo's ghost it will not down at the bidding, but appears at such times and seasons, and upon such circumstances as plagues and torments its foes.

And the truth is, it can not be killed. It may be scotched, and seem dead for a while, but it is bound to be made, and it will be none the less valuable because it has lived through such trials and difficulties.

Now that the Sandusky company is relieved from the entangling alliances that sought to strangle it, why does it not seize this opportunity boldly, co-operate with the parties interested in the Short Line, organize the elements of aid that are in waiting, build the road; and thus reap the great emoluments that are seen to follow such a result, as the night the day, and thus add immense value to the present line from Sandusky to Dayton, and be in such a position as to "command the situation, and dictate terms to all new lines seeking the Queen City from the North-east and North-west?

This is no great undertaking, and yet it is one of more value to the interest that succeeds in and holds a control over it, than any of equal extent and cost that we know of in the West.

There has never been a time since the inception of this project, that it would not have been wise to have completed it, but the pres-

ent is more favorable than ever before, and if Judge Sloan will avail himself of the opportunities that now offer he will place his road in a much more enviable condition, than through the scheme organized some time since in Sandusky has been carried on according to his understanding of its condition.

Sleeping Cars.

The following sensible article from the Cincinnati *Gazette*, meets our views exactly. For some time we have thought of pitching into this sleeping car monopoly, and are quite pleased to find our powerful daily contemporary come out so full upon the matter.

We can't understand why the railway companies should haul these sleeping coaches for nothing, and be subject to the expense of keeping them up besides, except it is that *some of the railway managers are stockholders in the sleeping car companies*, which we know is the case.

This whole thing ought to be looked into and put down, and the railway companies receive the benefit of the work done upon their roads.

The sleeping car companies, express companies, transportation companies, fast freight companies, etc., all declare enormous dividends, while the railway stockholders get little or nothing.

There is a great deal of renovating necessary in these affairs, and we are ready to help do the work.

Let the press speak out, and the reform will come sooner or later.

The Sleeping Car Company has gathered up the patents covering every form of rail car shifting berth, and thus it presents itself to the railroad companies, forbidding them to build anything in the shape of car berths, and demanding that they shall draw its cars for nothing, or be deprived of this convenience for its passengers. This makes a favorable situation for throttling all these patents at one stroke by throwing off the berth cars entirely, and replacing them by reclining arm chairs, such as have already been introduced on the Ohio & Mississippi road with great improvement. The public has been thoroughly prepared for this change by its general disgust at the berth cars on account of their uncleanness and their unknown perils.

It is not pleasant to discourse of this uncleanness. Passengers are generally aware of it, but in their necessity or urgency they decide to suppress their sensations, and take the risk. The hedding which has been used for a night by all sorts of persons, is crammed during the day into the chests contrived for its close storage, and then pulled out at night for a new set, and thus it served month after month; whereas after such promiscuous use it should never be used the second time without airing. The cars have generally inadequate means of ventilation, and none at all for excluding the dust in ventilating; and almost invariably the persons who attend them are constitutionally unaware of the use of fresh air, and are not instructed by the proprietors to furnish it to the passengers. They know of but one grateful sensation in the way

of atmosphere, and that is heat, and they regard the passengers as of the same nature.

The system is full of perils and disgusts, and the traveling public is well prepared for its abolition. On the other hand, the reclining chairs have not the bedding to absorb this unwholesomeness; they are always exposed to the air; they are protected by a clean spread where the head rests; they afford comfortable rest in the night, and superior comfort during the day, thus saving the cost of drawing an extra car; they allow the passenger the means of ventilation in case it is denied by the attendant; and they can be built and run by the railroad companies, thus dispatching at one blow the whole night car monopoly.

The Knickerbocker Life.

From time to time we have given our readers statements of the progress and operations of this reliable Company, and we have watched with considerable interest the skillful management that has so rapidly placed this organization among the few that are entitled to the especial confidence of the people.

Its work of last year is one that will add largely to its reputation. It has grown healthily in public approbation, financial standing and solid ability. And it has kept pace with the times and the experience of the insurance world, in adopting such reforms as will secure its supremacy.

We give its last annual statement which will repay a thorough examination and assure any one, we think, of the verity of all we claim for this worthy Company:

KNICKERBOCKER LIFE INSURANCE COMPANY.

Statement for the year ending December 31, 1869:

Net assets, December 31, 1868. \$3,725,627 31

Receipts.

Premiums, annuities, etc.....	4,599,944 72	
Interest and rents	452,742 28	5,042,687 00
		\$8,768,314 31

Disbursements.

Losses by death, annuities, natural endowments, etc.....	806,868 20	
Ad'ns to claims...	6,420 00	
Cash dividends...	513,410 63	
Policies surrend'ed	20,253 60	
Commissions to agents, and commutation paid for the extinguishment of all future commissions to agents.	563,751 71	
Medical examiner's fees.....	31,263 65	
Reinsurance.....	4,735 37	
Salaries, office expenses, printing, advertising, taxes, and all other expenses..	155,752 69	
		2,103,155 85
		\$6,665,158 46

Assets.	
Cash on hand and in bank	123,097 20
Bonds and mort's State, county and Government bonds.....	723,910 89
Real estate and furniture.....	286,294 15
Loans to policy-holders, secured by reserve of \$5,-270,000	42,536 48
Loans on stock at call	3,542,513 42
Stationery, blanks, revenue stamps, etc.....	434,180 00
Balance due from ag'ts and others.	4,488 57
Quarterly and semi-annual premiums due subsequent to Jan. 1, 1870.....	112,156 04
Unpaid premiums.	548,157 95
Interest accrued to Jan. 1, 1870.....	749,009 75
	93,214 01
Add advance in securities.....	6,665,158 46
Value of commuted commissions, estimated.....	15,807 10
	46,723 54
Gross assets, Jan. 1, 1870..	2,672,689 10

Personal.

We have received a call from our esteemed friend, J. H. POTTER, Superintendent of the Burlington & Cedar Rapids Railway of Iowa.

Mr. Potter keeps his jubilant health, size, and weight, and informs us that business is brisk with him, and that the West is the place for railway construction.

From the history he gives of the organization and progress of his company, and the large local support that was obtained comparatively easily, and the cheerfulness with which the treasurer's calls were responded to, it must be a paradise for the railway builders. This is the kind of spirit to exhibit in such enterprises. No wonder that Burlington can already boast of eight railways that will soon convey to her the products of a rich and extensive country, and within the next decade so increase her wealth and population as to place her among the first cities of the Mississippi border.

Bro. Potter is happy in the selection of such a field for his skill and enterprise, and we can assure the good people of that region that they are fortunate in having our worthy friend among them.

—The following were the earnings of the Chicago, Cincinnati & Louisville R. R. for the month of August:

Passengers.....	\$ 4,805
Freight.....	9,847
Total.....	\$14,652

Principles of Tractive Power in Locomotives.

BY P. BARNES, JR.

The power of any locomotive is limited by the *friction* or resistance to slipping or sliding between the tread of the driving wheel and the rail. The word "adhesion" is sometimes used in this connection, but it can be applied with correctness only to a resistance like that which is offered to the shearing of a body, as a bar of iron, in which the particles of the metal are forced to move or slide upon themselves while the shearing is taking place. Hence the ability of an engine to move a load will depend upon the *weight resting upon its driving wheels and the condition of the surface of the rail*, because the most careful special experiments and extended observation in practice show that in common with metals so nearly similar in character as rails and tires, whether of iron or steel, the friction is almost exactly proportional to the perpendicular pressure between the surfaces, or, in the case of the locomotive, to the pressure upon the rail. It is by this friction that the wheel is prevented from revolving freely when pressure is brought upon the piston, and this friction is always greatest, and the engine can draw the heaviest loads, when the rail is either perfectly dry or perfectly wet, so that the surface of the tire may come into close contact with the surface of the rail without the intervention of any slippery film of moisture.

The general law, deduced from the most exact experiments, is that the force required to move one body when sliding upon another corresponds very nearly to the perpendicular pressure between them multiplied by the *coefficient of friction*. This coefficient is simply the relation or proportion which the pressure required to move a body upon any surface bears to the weight of the body itself, and for general purposes may be stated to be from 1-20 to 1-10 between metals when properly oiled. If the surfaces are not properly smoothed, or if the pressure between them is so great as to produce grinding or abrasion, than this law will not hold good, but the coefficient will increase rapidly to a point determined by the special condition of the case. It is also evident that this coefficient or proportion will diminish when the surface sustaining the weight of the rail, in the case of the locomotive, becomes more slippery than usual, as when snow or ice accumulate on the track, or sometimes during a slight rain, and hence, as is well known, the tractive force of any engine may be very greatly reduced at such a time.

Since then the power of a locomotive depends so entirely, other things being equal, upon the weight carried upon its driving wheels, it might seem necessary merely to increase the total weight of the engine by loading it with pig iron in order to increase its tractive powers; but further consideration will show that this is not true. To illustrate the actual state of the case, suppose a locomotive to be firmly attached to a solid rock which can not be moved. If steam be then admitted to the cylinders, a pressure will be brought upon the driving wheels tending to make them revolve, and, in this supposed case, they can only slip upon the rail. This slipping will always take place when the pressure upon the piston due to the steam within the cylinder is greater than the product of the weight of the engine multiplied by the coefficient, of friction, since, as has already been shown, there is no other means than this of holding the wheels to the rail.

Slipping will not occur in this case if the pressure upon the piston is less than the product of these two factors. If the weight of the engine be not great enough to prevent slipping for any given size of cylinder or pressure of steam, then an increase of weight may usefully be made so that this product may be increased by which, as has been shown, the tractive power of the engine is measured or limited.

It will be seen, then, that with any given size of cylinder and standard pressure of steam a certain weight must be given to the locomotive, so that, under ordinary circumstances of weather, etc., no slipping of the wheels may occur, and also that no useful result can be obtained by increasing this weight beyond this certain amount; for the pressure upon the piston can not be increased beyond this assumed limit, and hence no additional load can be drawn, even though no slipping should take place.

The objection urged against the use of six-coupled engines, that have a long rigid wheel base, is an important one, and it is receiving serious attention in England, where these engines are vastly more common than in this country. Few builders, however, would put three pairs of driving wheels under any engine without making the boiler and other parts longer or heavier, so as to furnish a weight to be borne upon each pair of wheels equal, or nearly so, to that borne by each pair of wheels of an ordinary four-coupled engine, so that the larger engine may be efficient just in proportion to its size.

The grand objection to any increase of the weight of our engines, as now constructed, is that it is too destructive to the track to load each pair of wheels even as heavily as is ordinary now. The blows dealt by passing wheels upon the rail joints, and the bending or breaking strain brought at any instant upon the joint in the rail where a wheel presses, depend upon the weight which the wheel carries as well as the speed at which it moves, and hence to diminish our track repairs, that which is nearly or quite the most greedy of all maintenance accounts, the load borne per wheel in our locomotives must be lessened at least one half, so that it may more nearly agree with the load borne per wheel in the cars. How this can be done without increasing the rigid wheel base, while the present boiler and cylinder capacity are retained, is one of the most trying problems of the present day among locomotive builders, and certainly the most promising commencement of its solution is the introduction of the Fairlie engine, notwithstanding the numerous complications with which it is still beset.

—We learn that the Milwaukee and Northern Railroad Company are now shipping iron to complete the first section of their road to Cedarburg, about 20 miles from Milwaukee, and that it will be open for traffic in November next. Contracts are let to responsible persons to finish the road to Green Bay. This road passes through a district of country about 100 miles long by some 40 miles wide, bounded on one side by Lake Michigan, and on the other by Lakes Horicon and Winnebago and the Lower Fox River, and filled with the most dense and wealthy population of the State. This road shortens the distance by rail from Green Bay to Chicago about 60 miles. The lumber and grain traffic on this line when completed will be very great. This road is in responsible hands, and will be pushed forward to completion with great energy — *Am. R. R. Journal*.

The Railway Track.

The amount of money that is annually wasted on the 50,000 miles of railway track in the United States, because of the fact that the track is not properly kept up, would astound railway managers, if that amount could be definitely stated. This waste shows itself in a thousand and one different ways, in every element of the road-bed and superstructure, and in every part of the rolling stock. It includes cross-ties, rails, wheels, axles, bolts, screws, connecting-rods, etc., etc., all worn out or broken before the term of their natural "life," merely because they are subjected to an infinite series of unnecessary strains and concussions, consequent upon a rough and uneven track. The yearly repair expenses for rolling stock of different roads, if properly contrasted, would show the comparative effects on the rough and the smooth track; but in the multifarious ways adopted by different companies of keeping their accounts, the great and important facts are lost sight of, at least they are kept out of the sight of the shareholder and inquirer into the details of management. A better system of keeping accounts rigidly enforced by legislative regulation, might remedy this evil, but in the absence of this we are compelled to depend upon the well-known mechanical laws governing the strength and wear of all materials entering into the construction of the track and rolling stock. All these materials are perishable just in proportion as they are neglected or they are abused. The rail that, if properly laid in line and plane, and protected at the joints, may last a dozen years, will not last a third of that time if the joints are permitted to settle a quarter or half an inch at every passage of the driving wheels, and the tyre that would run a hundred and fifty thousand miles over an even track, will not stand half that service if it be permitted to hammer itself to pieces at these joint depressions. Every railway man recognizes these general facts in theory, but in nine cases out of ten, they permit these violations of plain and well-known mechanical laws, and so the annual repair expenses per mile run of all rolling stock are largely in excess of what they would be if the managers would but give the necessary practical attention to the foundation of all true railway economy, and that is: keep up the track to the maximum of stability and smoothness. Starting with a well-drained road-bed, with a good supply of ballast, with the cross-ties having plentiful and equal bearing per lineal running foot, and the rail with a good depth of section, so that the fish plates may give the requisite vertical stiffness and strength at the joints, and you have the best known type of a good and serviceable railway track. But starting with all these is not sufficient to secure good practical railway economy; they must be kept up. Every variation from it, whether due to climatic influences or mechanical influences, must be guarded against with the most untiring perseverance. Every cross-tie must be kept tamped up in place, and every fish-plate nut screwed to its proper bearing. This rattling, hammering, and jingling at the joints, which a certain Massachusetts railway manager used to call "the devil's own music," once stopped and kept stopped, prevents a good deal of the same destructive sort of music in the rolling stock. It is a great mistake to think that it is only the rail or the wheel that suffers from an uneven track. Three-quarters of all the breakages in the rolling stock are due to it, the general wear very much increased, and there-

by the "life" or duration of service very much decreased. If any railway manager doubts this, let him ask his master mechanic if a large proportion of the machinery repair expenses are not due to the very evils we have pointed out; and when he has satisfied himself upon that point, he will be willing to expend more liberally upon the track, that he may preserve that and the rolling stock at the same time. Every expenditure upon the track, guided by intelligence and skill, is in favor of eventual economy, to say nothing of the greater safety it insures. One great and common trouble is, that managers underrate the character of the labor required in track repairs; they think it plain, rough work, that any common laborer can do, and so they graduate the pay upon that idea, when, in fact, there is no department of railway labor where skill and experience are of more value, not necessarily all the labor, but the directing and supervising part of it. An intelligent and skillful trackman is invaluable, and the possession of these qualities presupposes an amount of practical and quasi-professional education that deserves to be not only well-recognized, but well paid for. On some of the larger and well-managed roads, track repairs are entrusted only to men who have had an engineering education, and their principal assistants and foremen on the different sections are selected for their intelligence and skill, and no disturbance of the track is permitted except under their eyes. The best results of railway operation will not be secured until a like system prevails everywhere.—*Am. Railway Times.*

An Indian Rubber Car Wheel.

It has always seemed as though the perfection of locomotive luxury would be reached when either the rails or the car wheels were made of rubber. John Raddin of Lynn has devised a wheel a portion of which is rubber. The mechanism and experiments are thus described in the *Boston Advertiser*:

The wheel is cast in three parts—the hub, the web, and a plate to which the hub is bolted. Between the axle and the hub intervenes a ring of solid rubber about three inches wide and one inch thick. The effect of a wheel made in this manner is that a sudden blow on the web is communicated to the rubber and thence to the axle. It is claimed that this wheel is cheaper, safer, because less liable to break, and more comfortable for the passenger. The new wheel reduces the jar to a minimum, and one can read without the least danger to the eyes. Going around curves the oscillation is hardly noticeable, and the sound is deadened so that conversation ceases to be an effort.

As to the economy and usefulness of the wheels, Superintendent Prescott is as yet the only one who can speak from experience. Superintendent Winslow has had them on two cars, which have run between Nashua and this city since March, and is very much pleased with them. Eight of them were run under a car on the Eastern Railroad 100,000 miles and were then taken apart and found to be in good condition. The ordinary car wheel is worn out after 40,000 miles running; then the axle and wheels have to be taken off and carried to a machine shop, where the old wheels are driven off and the axle is turned to fit a new set.

The elasticity of the Raddin wheel makes the tread wear twice as long as the common wheel, and then the bolts are taken out and a new wheel bolted in its place. The same

elasticity saves the track and the wear of the flange in going around the curves. Car wheel manufacturers say the vibration of the patent wheel is very much less than that of the old style, and the wheel being in three pieces the liability to break is very much diminished. The wheels are also being applied to locomotives. Several railroads have ordered some of the wheels for trial. A stock company is to be organized for their manufacture. The invention has been patented in Belgium, England and France, and Mr. Raddin has ten patents in this country.

A Want in Locomotive Engineering.

We this week saw in an English paper a controversy in regard to the speed of a train in rounding a curve, it being charged that a "driver," as our British cousins style a man who runs a locomotive, was in the habit of taking a particular train around a curve above the standard speed of forty miles an hour, for which the curves are calculated, thus endangering the safety of passengers.

This question of speed always comes up when accidents occur, and as yet no adequate means have been adopted whereby the precise speed of a locomotive engine at any given point of its running can be so recorded as to settle such questions beyond dispute.

Such an instrument would be a boon to engineers who run locomotives, and who are, in our opinion, much more often unjustly than justly blamed for undue and improper speed on the occasion of accidents.

The problem is not a difficult one to solve. We once, as a matter of personal amusement, designed an instrument on the principle of the ball governor which would do it perfectly. The balls, instead of being hung on pivoted arms, slid out on horizontal arms against scale-springs of definite power, as they revolved by motion derived by one of the truck wheels. In doing this they raised a tracing point along the side of a vertical cylinder revolving by clock-work, making a mark of given height for a given speed, rising with increased speed, and falling as the velocity of the locomotive decreased. Vertical lines on the surface of the cylinder represent hours and five minute divisions, and the position of the pointer between the lines might easily be computed for any less time than five minutes.

The general principle of this device is simply the conversion of rotary motion into pressure, and taking a diagram of the pressure at different points of motion, as is done with the steam indicator.

Doubtless inventors might greatly simplify this device, or it may be, adopting a different principle, succeed in devising something much better.

In legal actions arising from accidents on railways the corporations are always placed at a disadvantage before juries, the latter always being inclined to sympathize with the individuals rather than the companies, who, it is thought, can better afford to pay, than the individual can afford to fail to recover the damages he claims.

The witnesses, also, are, many of them, totally incompetent to judge of the question of speed, and are mostly liable to overrate it. The adoption of such an instrument as we have described, or some other calculated to effect the same object, would obviate all disagreements of this character, and thus prove valuable to the corporations, as well as to those who hold the responsible posts of engineers.—*Scientific American.*

Pneumatic Transport Extraordinary

It has been proverbial for the last eighteen hundred years or so that prophets are no prophets in their own land; but it was reserved for us very recently to discover that the same rule applied to pneumatic engineers. We do not mean that the high priests of Great George Street are unappreciated in our midst, but that the belief in these miracles is absurdly limited to facts, whereas our American cousins seem to endow their attempts with the credit of wonders, before which belief in the miracles and marvels of ancient days fade entirely into the common place. Instance the following:

A PEEP INTO THE FUTURE.

• The following extract from a letter received by one of our friends describes the operation of a pneumatic tube between Glasgow and London. Probably few of our readers are aware of the existence of the process by which messages and packages are almost instantaneously transmitted between these two cities. I had occasion to send a telegram to London the other day, and in a few minutes received a reply which led me to suppose that a serious error had been committed by my agents, involving many thousand pounds. I immediately went to the telegraph office and asked to see my message. The clerk said, "We can't show it to you, as we have sent it to London." "But," I replied, "you must have my original paper here; I wish to see that." He again said, "No, we have not got it; it is in the post office at London." "What do you mean?" I asked. "Pray let me see the paper I left here half an hour ago." "Well," said he, "if you must see it, we will get it back in a few minutes, but it is now in London." He rang a bell, and in five minutes or so produced my message, rolled up in pasteboard.

It seems that for some months there has existed a pneumatic telegraph between Glasgow and London, and between London and the other principal cities of the kingdom, which consists of an iron tube, into which the messages are thrown and sent to their destination. I inquired if I might see a message sent. "Oh, yes, come round here." He slipped a number of messages into the pasteboard scroll, popped it into the tube, and made a signal. I put my ear to the tube and heard a slight rumbling noise for seventeen seconds, when a bell rang beside me, indicating that the scroll had arrived at the General Post Office, 400 miles off. It almost took my breath away to think of it. If I could only go to Boston with the same relative speed, you might count on my passing an evening every week at 124 Beacon Street, and returning home to sleep. Who knows but we may be conveyed in this marvellous manner before many years?

Perhaps you are aware that there has been a large tube between the General Post Office in London and the station in Euston-square for a number of years. The mail bags for the North are all sent by this conveyance, so that the post office receives letters up to a few minutes before the train leaves, three miles off. The transit takes less than two seconds. Surely this is an age of wonders.—*Boston Transcript*.

Now it is scarcely necessary to inform our readers that a pneumatic tube between London and Glasgow not only does not exist, but that, as a pneumatic tube, it would be a physical impossibility unless the carriers were allowed some days to make the transit. To travel from London to Glasgow, 405 miles, in

17 seconds is at the rate of 24 miles a second, five miles faster than the earth rotates. A carrier so impelled in a tube, would become red-hot by the friction before it had traveled a single second. We fear that some mischievous telegraph clerk has been practicing a wicked joke upon one of the friends of the *Boston Transcript*. The concluding marvel is no less marvellous or untrue. The line between Euston-square and Holborn is worked through in 7½ minutes; and that between Euston-square and the General Post Office will take 12 minutes at least, not "less than two seconds," as it has credit for in the above. We have more than once made a journey in the carriers of the Pneumatic Company between Euston-square and Holborn, and arrived safe and sound as we expected; but we confess that a transit of a mile a second would make us feel rather nervous, especially toward the point of arrival, although the sensation, whatever it might be, it is true, would not last long.—*Engineering*.

Chinese Labor.

There can be no doubt that within a very few years a large number of Chinese will be added to our laboring population. The influence of labor strikes, the interference of the members of the different Trades' Unions between employers and employees, by attempting to prevent master mechanics and contractors generally from taking apprentices, their interference with the discipline and regulations of manufacturing establishments, and the disproportionate high rates of labor in all industrial callings, must lead to a strong and concerted movement to increase the number of the laboring population, and from no other place can this needed supply come so easily and cheaply as from China. The experience in California is much in favor of the Chinese both as laborers and house servants; they are quiet, industrious, sober, and intelligent, characteristics which will recommend them all over the country and insure them a welcome despite the prejudices of the unthinking portions of the community. That they are capable of being good mechanics the experiment at North Adams, Mass., fully proves, that they make good railway laborers their work on the Pacific Railway shows. We have a letter from a gentleman in San Francisco who employs a large number of laborers, and he states that the Chinese are most satisfactory of all, that he has less trouble with them than with those of any other nationality. There is very little danger of having too many laborers in this country for a century at least, and it will be wise for all concerned that we not only welcome any number of good laborers, but take the proper measures to prevent any antagonism between those of different nationalities. The Chinese are among us, and more of them will be, and they should and will receive the same protection that the laws give to others. As railway laborers they are very valuable, and we learn that the contractors for the railway from Framingham to Lowell are to employ gangs of Chinese, and it is stated by the *Lynchburg (Va.) News* that the Chesapeake and Ohio Railroad company intend to employ immediately one thousand Chinese to work on the construction of that road. They are induced to take this step, it is said, because the colored laborers have left and are still leaving the road in large numbers, and we hear of quite a number of manufacturing establishments where it is proposed to employ the Chinese.—*Am. Railway Times*.

Future of the Southern States.

[Extract from a letter by Duncan Stewart.]

Within a very few years the South will make an immense drain on the population of Great Britain for miners, founders, iron ship-builders, workers in all departments connected with the iron industries, field laborers and cotton spinners, weavers, and printers—splendid wages, free houses, fine gardens, cheap clothing, and all the fruit they can consume, and of such kinds as only grace the tables of the great and rich in Britain, will be some of the advantages they will reap from the opening of the South to free labor, and the destruction of human slavery. If England will lose some trade on account of this great progress, she need support no paupers, for the South will easily absorb every spare worker that she contains. The nine million of paupers she now maintains in idleness will find at the South permanent employment, and the two millions more of her people that have to struggle hard for a bare existence will here find labor that is so remunerative that they can live in comfort equal to that of the most thriving of the shopkeepers of Glasgow and Manchester. Getting rid of her spare population will be some compensation to England for the "total loss of present trade in the products of iron and cotton, with the United States"—not brought about by an irritating tariff, but by our ability to produce goods made from iron and cotton cheaper than she possibly can. From what has been stated it will be seen that 19 square miles will render a factory, like the one I have described, a self-reliant institution for the raw material and food for such works, as will produce 2,369,690 pounds of coarse cotton cloths, containing 7,776,602 yards. Of course the same cotton could be spun into calicoes and muslins that would produce twenty or thirty millions of yards. The goods made were all either plain or striped—none of them were printed. Again, if the goods made at the Augusta factory were finer, and were printed, 25 square miles, or a territory 5 miles square, would raise all the cotton and food of every description needed to make the factory independent of the outside world for everything only a market, and tea, coffee, and sugar, and the latter could be got in a neighboring State; not only so, but it would support all the population of the aged and young belonging to the families of the workers, as well as the families of the incidental industrious needed for the comfort of such a population, such as wagon-makers, blacksmiths, tailors, shoe-makers, dress-makers, grocers, bakers, butchers, and so on. I could go on and write fifty more pages to show that the South must become, if true to herself, the most wealthy and powerful people the world has ever beheld.

— The Spuyten Duyvel & Port Morris is a branch of the Hudson River Railroad, just north of Manhattan Island, in Westchester county, to connect with the Harlem Railroad. The contracts require its completion by Jan. 1st, 1870, after which Hudson River passengers will be brought to the great Union Passenger station at Forty-second st. and Fourth ave., now building, thus avoiding the present journey from the Thirtieth st. station, which must be made at a low speed. The new road passes under Higb bridge and the Central avenue bridge (at McComb's Dam). It is proposed to have stations at each of the connecting roads now building, which will accommodate travel in the lower portion of Westchester county.

Railroad Items.

—An important railroad negotiation was concluded July 20, by A. K. McClure, counsel for the Central Improvement Company, with the Shenandoah Valley Railroad Company, for the completion of the Shenandoah Valley Railroad from Shepherdstown, via Charlestown, Front Royal, Lexington, &c., to the Virginia and Tennessee railroad, near Salem, a distance of 233 miles, the whole line to be completed and ready for the cars within two years. Prominent railroad men are in the enterprise, and the work will be vigorously prosecuted. The Cumberland Valley Railroad will be extended from Hagerstown to Shepherdstown, thus connecting the Shenandoah Valley line with Philadelphia by the Cumberland Valley and the Pennsylvania Central. It is contemplated we learn, at an early day to extend the Shenandoah Valley line through the Clinch Valley to Knoxville, and develop one of the finest mineral regions of the continent.

—The Nemaha Valley, Lincoln and Loup Fork Railroad begins at Rulo, in the southeastern part of Nebraska, and passes thence very nearly northwest, through Richardson, Johnson, Lancaster, Butler and Platte counties, and, following the meanders of the Loup, strikes the head waters of the Niobrara, and passing between the Black Hills and the Big Horn Mountains on the south, reaches Virginia City in Montana. Connection is designed to be made thence with the North Pacific to Puget Sound. The entire route from Rulo to Virginia City is perfectly practicable, the most expensive part, perhaps, being the bridge across the Platte at Columbus. Ten miles from Rulo have already been laid to secure the State grant, and hands are grading for 40 miles further. So that, by the 1st of January, 1871, fifty miles will be in running order.

—The Southern Kansas *Advocate* says the coal traffic of Chetopa is developing into an immense business. Geo. A. Reynolds has just completed a contract with the Kansas Pacific R. R. for supplying it with all the coal consumed on the Eastern Division of the road. He has already made arrangements to supply Lawrence and other towns on the line of the Galveston road as soon as it connects with the Mo., K. & T. R. R.

Supt. White has arranged for shipping 19 car loads per day, facilities to be increased as required.

—The first 20 miles of the Mobile and Alabama Grand Trunk is to be completed the 31st of December next. The price paid for grading is about thirty five cents per yard, with some modifications. The amount of grading is about 220,000 cubic yards, Col. Rives, the Chief Engineer, not satisfied with the bids for bridging the Chicasabogue, is still negotiating, but will close the contract in time to cause no delay in opening the road when the grading is done. The track-laying will be done by the company direct. The iron has been bought, and is now *en route*.

—The Clinton (Mo.) *Advocate* of the 8th inst. says of the Memphis & Kansas City R. R.: "Last Saturday, Engineer Griswold received his complete set of new and bright instruments, and on Monday with his chain-carrier, ax-men, flag-men and teamsters, eight in number, with two horses, wagon and camp outfit, started out to survey the Clinton Branches of the Mem. & K. C. Roads. They move off in the direction of Osceola."

—C. W. Fisher, Esq., Supt. of the Denver Pacific, has added to his charge 106 miles of the Kansas Pacific extension near Denver, and will hereafter run the two roads. The *Colorado Tribune* says this is a compliment to a worthy officer and gentleman which could not have been better bestowed, and it also unites under one management all that road, the profits of which by mutual agreement are to be divided between the two companies.

—At a Directors' meeting of the Topeka, Burlington and Verdigris Railroad held in Topeka on the 2nd inst., a committee consisting of Thaddeus Walker, Col. Holliday and Judge Rankin, to consult with Mr. Tracy, President of the Chicago & Rock Island R. R., in relation to the interests of this road, was appointed. It was also

Resolved, That whenever the counties of Osage and Coffey will vote bonds to the T. R. & V. R. R., to the amount of \$250,000, we will guarantee the immediate building of the road, from a point in Osage County, on the A. T. & S. F. R. R., to Burlington, in Coffey county, via Ottumwa.

—From the St. Paul *Press* we learn that the line of the St. Paul & Sioux City R. R. is graded to St. James, 11 miles beyond Madelia, and track-laying will be completed so that trains will run to that point in October. Twenty-two miles of main track have been built this season, and considerable work done on the old track, besides the building of the drawbridge across the Minn. river at St. Peter. Thirty miles of the road beyond St. James have been located; some grading will be done this year. The thirty miles to the Ohio State Line will be built the coming year, and 20 miles in Iowa the next year.

—Denver now has two railroads in running order, viz: north to Cheyenne, intersecting the "Union Pacific," and the "Denver Extension of the Kansas Pacific." She has the following roads projected: The Denver, Boulder & Cache La Poudre, northwest direction, to intersect with the Union Pacific; Denver, Atchison & St. Joseph (Atchison & Pike's Peak); Denver and Santa Fe, south; South Park & Rio Grande, southwest; and Central Pacific directly west over the mountains. A very few years will witness the construction of these roads.

—The grading, bridging and tying of the Quincy and Carthage R. R. is completed between Carthage and Mendon, with the exception of the bridge over Bear Creek, and the laying of iron between these two towns has begun. Work is rapidly progressing on the line as far as the bluffs, six miles above Quincy, where it strikes the river bottom, and work on the remaining portion is contracted for. Iron is constantly arriving, and the cars will be running between Quincy and Carthage within a couple of months.

—The following is a statement of the approximate earnings of the Marietta and Cincinnati R. R. during the month of August:

	1870.	1869.
Passenger.....	\$ 36,047	\$ 35,150
Freight.....	77,261	89,278
Mail, Exp. and Tel.....	5,099	4,960
Total.....	\$118,407	\$129,388
Total for fiscal year commencing Jan 1.....	\$846,407	\$876,832

—The iron bridge at Kehl, which was blown up at the commencement of the war, cost the Eastern Railway Company of France \$1,600,000.

The *Abilene Chronicle* says 125 cars of cattle were shipped last week from the stock yards at that point. About 65,000 head are now in that vicinity. At an average of \$25 per head, these cattle are worth \$1,625,000. About 11,000 head have already been shipped during the present season to Chicago alone. These cattle were worth in the Abilene market \$260,000.

RAILWAYS AND THE WAR.—The N. Y. *Tribune* correspondent says that more is expected of steam in this campaign than it will accomplish. The Eastern Railway used almost superhuman efforts to carry 400,000 men to Strasburg and Metz. It occupied 14 days. A train can not convey more than one battalion, one squadron, or a single battery at a time, or, as a mean term, 500 men with their equipments. This would require 800 trains for a total of 400,000 men. It has demanded extraordinary efforts to convey this "food for cannon" to the frontier, and but for them four months would have been consumed in concentrating them there from Paris alone.

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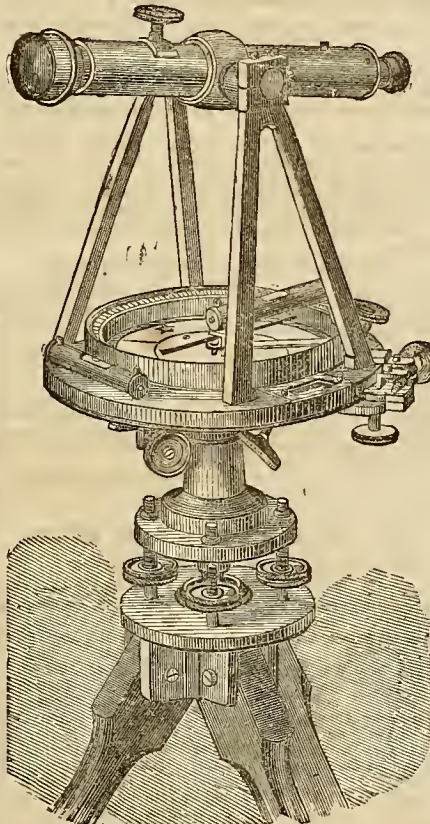
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Mail..... 7:15 A. M. 10:55 P. M.
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Through Western Express..... 5:10 P. M. 8:30 P. M.
Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than C. & O. time.

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BUFFALO to NEW YORK, - 423 Miles.
ROCHESTER to NEW YORK, - 385 Miles

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7.00 A. M., CINCINNATI EXPRESS,
(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,
daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

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The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7:20 am	12:40 m
St. Louis and Springfield Express....	7:20 pm	7:35 am
St. Louis and Springfield Express....	9:20 pm	3:42 pm
Lawrenceburg Accommodation.....	10:10 am	2:35 pm
Lawrenceburg Accommodation.....	4:30 pm	8:25 am

*The 10:30 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7:00 am	10:15 am
Chicago Express.....	6:50 pm	9:30 pm
Harrison Accommodation.....	5:30 pm	7:10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Syringfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Mancie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do	5:30 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do	6:30 A. M.	

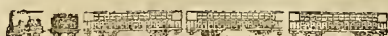
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On and after June 13, trains will run as follows:
No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellshurg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville, Campbellshurg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellshurg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

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FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckahannock &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays.) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays.) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburgh, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburgh, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:10, 7:25, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 234, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, THURSDAY, SEPTEMBER 29, 1870.

The Railroad Record,

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The United States government have granted to railway corporations within the past few years the enormous amount of *one hundred and fifty millions* of acres of land, and these are located in such parallels of latitude as to include the advantages of every variety of climate found upon the American continent, and are among, intrinsically, the most productive acres to be found in our whole broad domain. Within the area of these munificent grants are found beds of iron ore, rich and pure as any in the world, and of such extent as to be adequate to the demand of even this iron consuming age for centuries—great fields of coal, mountains rich with silver and gold and lead, ledges of the finest marble, deposits of tin and quicksilver, fountains of petroleum, hundreds of square miles of the most valuable timber of the country, streams that are swift and strong, and living with power adequate to drive an incalculable amount of machinery, and as many acres of as rich, fertile soil as can be found in the world, in the same extent of territory.

The grants of which we speak are known as railway grants, and were made for the purpose of concentrating capital that would be expended in the construction of railways through these lands, and to strengthen, in a pecuniary sense, the corporations that should engage in these great works.

Under the plan upon which these gratuities were made, the government simply contributed a portion of its dormant values for the purpose of vitalizing the remainder, and thus enabling individual organizations to accomplish what the government itself could not do as well and as quick, if at all. This is nothing more than is done every day and in every business community, and is known to be so legitimate and productive of such good results as not to admit of question.

But of what use is square miles of such lands to the railway company any more than to the government until they are settled by an active, industrious people, and their resources developed? They were so much dead weight, and could only be brought into use by the expenditure of large sums of money in making thoroughfares through them, and obtaining settlers by attracting the immense immigration that is pouring upon our shores. What they needed was people—men and women who could and would work, and who would build houses and till the soil, and raise stock, and create organized communities, and erect churches and school houses and mills and factories, and create values and capital; and who would travel, and want more mail facilities, and who would require commercial relations with other parts of the country; all of which would give a perpetual and profitable traffic to the railway, and enhance immensely the value of lands within such influences. All this could not be done by selling large sections of land to speculators, who would hold them for actual settlers upon coterminous lands to make valuable, but by selling lots of suitable size for absolute working to such parties as would move upon them and become resident in the country.

This has given rise to the organization of other companies, known by various titles, for the special purpose of advertising these lands in all parts of the world from which emigrants would be likely to be obtained, and in aiding the organization and transit of colonies to new fields of labor, assisting the emigrant with means, and by securing reduced rates of passage, and relieving him from the annoyances, delays and impositions he is subject to from the time of his departure to his arrival at his destination. In all these respects such companies have been of great value to the adventurers who seek homes in the new world, and they have so availed themselves of the experience in their labors, and worked such thorough reforms in the management of their affairs, that they may be said to have reached a scientific perfection in all that pertains to their business.

To include all these reforms and place them in the most effective working order, The National Land Company was organized in the fall of 1867, hardly three years since, and within this brief period has so extended its operations, and been so energetically and admirably managed, as to stand out as the most

successful association of the kind in the country.

Into the hands of this company is placed a large portion of these railway lands, to sell upon commission at stipulated rates, or sold directly to it at a price remunerative to the railway interest and upon conditions that allow the land company to make the best of terms with the purchasing settler. The railway companies and the land company finding their interests mutual, co-operate in such a way as to produce the desirable results of rapid sales and settlement along the line of the road, and the development of the resources of the country.

It is at this point in affairs that the work of the land company may be said to begin. The lands are at once carefully platted and mapped; accurate descriptions of each section are prepared; the values are fixed, varying according to fertility, contiguity to the road or way station, or water, or timber. The terms of purchase are established, a succinct history is written out of the settlement and of the growth, and a statistical exhibit of the products of any part of the state or country in which these lands are located, favorable letters from correspondents of the press, and the opinions of distinguished visitors to the country and of scientific men, and of committees sent out by colonists, are compiled, and even views of prominent localities are obtained, and samples of the products of the country are sent to the various industrial exhibitions, and certificates from the examining committees of their size and value are secured, and then this mass of facts is published, in newspapers specially devoted to this purpose, in some of the regular issues of the daily and weekly press of the country, in magazines, in pamphlets, in extra newspaper slips, and in every way known to this advertising age and country, and sent broadcast by hundreds of thousands among the people of the old world as well as the new. And in addition to all these means of making such facts known, in almost every town in the United States and Europe is an active agent, smart in all the affairs of the company, who opens a showy office upon some popular thoroughfare, and who disseminates intelligence to the people by distributing documents and by personal attention.

Such extensive and systematic advertising has never yet failed to create an immense business. It opens up avenues of trade heretofore unknown, and calls into activity interests that had lain dormant, and that were apparently foreign to the purposes of such efforts, and the company soon becomes so strong and its reputation so well established, that it is capable of granting the most favorable conditions and rendering the most efficient aid to those who seek its services.

The National Land Company is the best exemplar of all this that we know of. Early in its history we find it publishing quarterly a

large and beautifully printed sheet, simultaneously at New York and Topeka, headed with the attractive name of the *Star of Empire*. It contains valuable maps of the lands in their control, with railway lines by which they may be most conveniently reached—descriptions of the quality of these lands, the experiments in their culture, the testimonials of settlers, the cost of transportation from every prominent port in the world, the requisites and price thereof for a year's subsistence, the value of labor and all sorts of products, the kind of buildings that are cheapest and best for the new comers, calculations founded upon the experience of the country as to its advance in value in a given time, the best and cheapest way to get to this property, where to apply for information relative to the country, anecdotes and stories illustrative of the people and of the society of such sections, the debt of the State in which these lands are located, the annual taxes thereon—in fact about everything that can be desired or probably inquired about by those who contemplate migrating to the west. These papers are printed in five different languages, and gratuitously circulated by the million.

Besides this, the company sustains an intelligent gentleman in England, who travels about the country, calls the people together at convenient points, and explains to them the advantages of settlement in America, and gives them such facts as are of value in their transit from England, and indeed undertakes to see that emigrants are comfortably shipped for the Atlantic voyage, well provided with comforts as well as necessities, and that they are subjected to none of those impositions so often practiced at seaports upon the innocent and unwary.

In addition to all this, the company has recently concluded arrangements with the Atlantic steamship companies and the railway companies of America, by which they can supply emigrants who propose to settle upon these lands with passage tickets direct from the principal ports in Europe, and at rates considerably reduced from those ordinarily charged. By such arrangements this land company becomes the guardian of the emigrant from the time of his leaving his home until he reaches his destination, and shields him from the petty annoyances and the improper expenses, and prevents the delays he would otherwise be likely to encounter.

It is impossible for settlers in the west to purchase land as favorably as are offered by organizations such as we speak of. The National Land Company makes the following attractive offer to purchasers of their lands in Kansas and Colorado:

These lands are offered in tracts of 80, 160, 320 and 640 acres, to individual settlers and

to colonies, in selections, to any extent desired, at from

\$2 to \$8 per acre.

TERMS OF PAYMENT.—Sales are made on credit, as follows: One-fifth cash at time of purchase. No payment, except interest, at end of the *First* year; one-fifth cash, with interest due, at end of *Second* year; one-fifth cash, with interest due, at end of *Third* year; one-fifth cash, with interest due, at end of *Fourth* year; one-fifth cash, with interest due, at end of *Fifth* year. Interest on deferred payments at 6 per cent. per annum. A DEDUCTION OF TEN PER CENT. on credit price will be made for cash payment in full at time of selection and purchase.

EXAMPLE.—160 acres, at \$4 per acre, will cost \$640, to be paid as follows:

	Principal.	Interest.
Cash payment.....	\$128 00	
End of first year.....		\$30 72
End of second year.....	128 00 and	30 72
End of third year.....	128 00 and	23 04
End of fourth year.....	128 00 and	15 36
End of fifth year.....	128 00 and	7 68

The same farm may be purchased for \$576, cash.

This is most satisfactory, and places a good farm within the reach of the industrious head of every frugal family.

As a result of the business done by this company the following statement is given, which shows a most healthy advance, and the most flattering prospects, fitting rewards for the energy, and good management of its affairs:

The Land Department of the Kansas Pacific Railway Company commenced business January 1st, 1868.

The first six months of that year there were sold 21,834 acres for \$62,379.

The progress of the land development of the road not being as rapid as desired, or expected, the Directory encouraged the organization of the National Land Company, which was finally effected in June, 1868, and we were immediately charged with advertising the landed properties of the road, and with sale and promotion of settlement of their land grant by movement of actual settlers thereon, through our Emigration Bureau.

The first six months of our agency there were more than four times as much land sold as during the previous six months by the railroad company direct. The second six months the sales were six times as large, and the third six months of our agency the sales of the road were more than *fourteen times* as large as the first six months of their business under the old system of conducting railway land departments.

LAND SALES.		
	Acres.	Sold for.
1st 6 mos. 1868,	\$21,834 14	\$62,369 03
2d 6 " "	89,437 15	267,443 64
1st 6 " 1869,	128,083 64	328,820 29
2d 6 " "	302,924 66	947,488 02

Total sales to Jan.

1st, 1870.....\$542,279 59 \$11,606,120 98

Our sales for the year 1869 are four times larger than the sales of the Illinois Central Railway during any *four* years since offering their lands for sale, and the Illinois Central has the best managed railway land department in America.

These results are fairly attributable to our thorough organization and novel plan for ad-

vertising the patrimony of the railroad companies and the economical facilities for transporting and settling emigrating land buyers.

It is not our purpose at this time to speak of the character of the vast property this National company controls, or advance an opinion as to the best locality to settle in. We reserve these matters for another paper. We have proposed to speak of the value of such organizations, and The National Land Company in particular, in making known the merits of that part of the continent to be brought into the arena of civilization by the construction of the great Pacific railways, and in enabling that class of people, who, with strong arms and stout hearts, and their little store of worldly goods, seek homes in the far West, to overcome the difficulties they so much dread in the transit, to save them as large a share as possible of their means to start life again in the new world, and to place them as rapidly as practicable in that part of this great country best suited to their habits and capacity.

That this National company is doing this with extraordinary success, and with most commendable good faith and integrity, there can be no doubt. The statistics prove it, and the universal testimony of those who have been the recipients of its favor and skill is such an indorsement as may well excite a pride in its managers, and as places it upon the list of public benefactors.

Something New.

The surveyors are examining a line for a railroad from Cincinnati to Springfield via Lebanon, or any other place that will raise funds to pay the costs.

We wonder what can be found new in this part of the Miami valley. It has been the field for experimental surveying for the past twenty years, and long before this has been thoroughly ransacked.

If the object is practice in this valuable science then it is all well enough, but if it is for information of the contour of the country, the material to be found there, and to obtain data for the construction of a railway, then it is the sheerest folly, as all these facts can be had in any railroad office in this city.

This charming valley has been the fooling ground for railroad schemers. When they can't do anything else, they will run a line from some place in the upper part of the valley to this city, or if that won't satisfy their mania, they will run half a dozen, and blow hard and strong about how quick the road is to be built.

There was a time when this kind of thing excited some folks and scared others, but that is past long since, and now, when such performances are going on they excite a sneer from those who are attempted to be imposed upon. The thing won't work any longer. It is a sucked orange, and played out.

Springfield Short Line Railroad.

THE CINCINNATI & SPRINGFIELD RAILROAD.—We have it from reliable sources that the negotiations which have been pending between the parties in the interest of the proposed railroad between Cincinnati and Springfield, and the Pennsylvania Central Railroad, by which it was proposed that the Little Miami road should be used to supersede the necessity of the building of the new road have within the past forty-eight hours entirely failed, and that the prospects now are the new road will at once be made. Whether the latter will be built directly to Springfield *via* Lebanon, or proceed to Dayton, has not been settled.—*Gazette*.

Some three or four weeks ago, we triumphantly hailed the announcement of the organization of a new company composed of home men—strong men—to construct this much needed work. From the above, however, we are fully convinced that we were mistaken in our assertion that it "meant business," and the good story that we told about the farmer and the birds, and the cutting of the grain, is all lost—wasted, like water thrown on the back of a duck. In fact, it puts us in mind of another story, that we think just exactly suits the case. We clip it from the papers:

We met a hoy on the streets yesterday, and without the ceremony of asking our name he exclaimed:

"You just orter been down to the river a while ago!"

"Why?" we inquired.

"Because, a nigger was there in swimming, and a big cat-fish came up behind him and swallowed both of his feet and went swimming along on the top of the water with him, and they came behind another big fish, and the nigger swallowed his tail, and the nigger and two fish went swimming about!"

"Well, then what?" we asked.

"Why, after a while the nigger swallowed his fish, and the other swallowed the nigger, and that's the last I saw of either of them."

Statement of Public Finances.

Comparative Statement of the Net Receipts and Expenditures of the United States Government for the eighteen months from September 1, 1867, to March 1, 1869, and the eighteen months from March 1, 1869, to September 1, 1870.

RECEIPTS.

Sources of revenue.	18 months from Sept. 1, 1867, to March 1, 1869.	18 months from March 1, 1869, to Sept. 1, 1870.
Customs	\$251,973,708 19	\$294,725,130 21
Lands	3,491,378 58	5,310,894 78
Internal Revenue	216,133,845 74	190,397,764 89
Miscellaneous	54,716,270 51	44,095,169 74
	\$556,315,203 02	\$643,528,968 62
Sources of revenue.	Net decrease.	Net increase.
Customs		\$42,751,431 02
Lands		1,819,516 20
Internal Revenue		53,263,919 15
Miscellaneous	\$10,621,100 77	
	\$10,621,100 77	\$97,834,866 37
Increase of revenue		\$87,213,765 60

EXPENDITURES.

On what account.	18 months from Sept. 1, 1867, to March 1, 1869.	18 months from March 1, 1869, to Sept. 1, 1870.
For Congress	\$5,064,467 45	\$6,398,235 85
For expenses of the Post Office Department, (mail transportation.)	7,189,107 21	8,615,123 14
For expenses of foreign intercourse	1,854,362 83	1,935,808 81
For Executive and miscellaneous expenses	23,952 322 37	19,044,091 02
For expenses of public buildings and grounds in Washington	2,194,013 65	1,529,605 28
For expenses of collecting the revenue from customs	9,364,504 52	9,235,487 83
For miscellaneous expenses of customs, including buildings	10,910,971 53	12,443,632 26
For expenses of assessing and collecting in internal revenue	11,797,679 73	10,975,724 40
For miscellaneous expenses, internal revenue	3,752,736 47	2,752,911 18
For expenses of United States courts	2,576,488 40	3,341,136 81
For miscellaneous expenses under Interior Department	4,610,519 30	4,762,451 04
For expenses of War Department	162,836,593 19	82,619,058 81
For expenses of Navy Department	36,746,544 07	31,205,615 71
For expenses of Indian Department	8,721,899 60	7,215,650 60
For expenses of Pension Department	37,192,759 57	43,842,196 38
	\$328,765,689 89	\$245,912,629 12
Decrease		\$82,853,060 77

By the foregoing statements it will be seen that the amount gained by increase of receipts and decrease of expenditures has been as follows:

From increase of receipts.....\$87,213,765 60
From decrease of expenditures 82,853,060 77

Total.....\$170,066,826 37

Reduction in Interest Account.

The amount of interest paid from Sept. 1, 1867, to March 1, 1869, was.....\$211,221,716 68
The amount of interest paid from March 1, 1869, to Sept. 1, 1870, was.....193,421,155 00

Showing a net decrease on interest account of.....\$17,800,561 68

Reduction of Public Debt.

The reduction of the public debt from Sept. 1, 1867, to March 1, 1869, was.....\$1,383,460 76
The reduction of the public debt from March 1, 1869, to Sept. 1, 1870, was.....169,542,109 60

Showing an increase in the reduction of the public debt of.....\$168,158,648 93

During the eighteen months from March 1, 1869, to Sept. 1, 1870, the amount of reduction in the public debt has been, as above shown, \$169,542,109 60, most of which has been in the purchase and cancellation of bonds bearing interest in coin, and in the payment of obligations overdue and convertible into interest-bearing bonds or certificates.

The amount of interest which will hereafter be saved to the Government on the debt actually paid, is about \$8,745,596 08 annually, or \$728,799 67 monthly, mostly in gold.

There has also been a constant improvement in the decrease of the debt during the six months since March 1st of this year over the corresponding six months of 1869, to the following extent:

In	1869.	1870.	Gain in decrease.
March.....	\$266,798 27	\$5766,349 43	\$5,499,551 16
April.....	6,399,070 65	11,697,793 39	5,298,722 74
May.....	13,381,777 97	14,301,962 57	917,184 60
June.....	16,410,132 54	20,203,772 04	3,793,639 50
July.....	7,435,744 29	17,034,123 74	9,598,379 45
August.....	5,604,234 79	13,403,925 59	7,799,690 80
	\$49,500,758 51	\$82,407,326 76	\$32,906,468 25

And the decrease of the debt for the past six months, as compared with the twelve preceding months, is as follows:

Decrease of public debt for the 12 months preceding March 1, 1870.....\$86,934,782 84
For the 6 months since that date.....82,407,326 76

The foregoing is a correct comparison of the financial operations of the Government, during the periods named, made from the official records of this Department.

WM. A. RICHARDSON, *Acting Sec'y.*
Treasury Department, Sept. 5, 1870.

Died.

PROSSER—At his residence, Stuyvesant Avenue, Brooklyn, 15th inst., Thomas Prosser, aged 69 years.

We make this announcement with a feeling of deep regret, as we had long known Mr. Prosser as a worthy, upright and intelligent man.

Mr. P. was the New York agent of the famous Krupp establishment of Prussia, and in his extensive relations with railroad and business men of this country, made troops of friends, who will join us in our sorrow that so good a man could not longer remain with us. May he rest in peace.

THE POST OFFICE DEPARTMENT.—A comparative statement has been prepared at the Post Office Department, which shows a very favorable financial condition. For the year ending June 30, 1869, only one quarter of which came under the present administration, the statement was as follows:

Expenditures.....\$23,693,131 50
Receipts.....18,344,510 72

Deficit.....\$5,353,620 79

Since, there have been added to the service, 856 new post offices, 616 new money order offices, 2,448,488 miles of annual inland mail transportation, and yet with the increase of service, the estimated expenditure for 1870 is \$25,581,093; only \$1,882,961.50 more than was expended on the interior service in the year ending June 30, 1869. At the same time receipts of the department are rapidly increasing, and the ratio of expenditures is diminishing to an extent which is believed to warrant the declaration that there will be not only no deficit at the close of the current year, but justifying the expectation that the expenditures will fall considerably below the estimates.

Important to Railway and Other Corporations.

The following revised ruling by Mr. J. W. Douglass, Acting Commissioner for the Internal Revenue Department, in reply to a communication from W. Raymond Lee, Esq., Assessor of the Third Massachusetts District, is of especial interest to railway, bank and other corporations:—

TREASURY DEPARTMENT,
OFFICE OF INTERNAL REVENUE,
Washington, Sep. 7, 1870.

Sir:—Your letter of the 1st instant, respecting the assessment and collection of the tax imposed upon dividends by section 15 of the act of July 14, 1870, was received on the 5th.

It is enacted in said section that there shall be levied and collected *for and during* the year eighteen hundred and seventy one, a tax of two and one-half per centum on the amount of all interest or coupons paid on bonds or other evidences of debt issued and payable in one or more years after date, by any of the corporations in this section hereinafter enumerated, and on the amount of all dividends of earnings, income or gains *hereafter declared* by any bank, trust company, savings institution, insurance company, railroad company, canal company, turnpike company, canal navigation company and slack-water company, whenever and wherever they shall be payable, and to whatsoever person the same may be due, including non residents, whether citizens or aliens, and on all undivided profits of any such corporation, which have accrued and been earned and added to any surplus, contingent or other fund, and every such corporation, having paid the tax, as aforesaid, is hereby authorized to deduct and withhold from any payment on account of interest, coupons and dividends, an amount equal to the tax of two and one-half per centum on the same.

You will notice that by the terms of the section the tax upon the *interest and coupons* paid upon bonds or other evidences of debt issued by the companies, corporations, &c., therein enumerated, is to be levied "*for and during* the year eighteen hundred and seventy-one," that the tax upon the *dividends of earnings* of said companies, &c., is also to be levied and collected *during* the year eighteen hundred and seventy one, but is to be levied upon all dividends *declared after the passage of the act*.

It is therefore ruled that no tax is to be withheld from interest and coupons which fall due during the last five months of the present calendar year, but that they are to be returned, like interest from other sources, in the next annual income returns of the parties receiving them.

It is also held that although a tax of two and one-half per centum is imposed upon dividends declared by said companies, corporations, &c., on and after August 1, 1870, it is to be "*levied and collected * * during* the year eighteen hundred and seventy-one." It is not necessary to decide at present at what time in eighteen hundred and seventy one the taxes upon these dividends of eighteen hundred and seventy are to be levied. Further legislation may be required upon that point.

Very respectfully,

(signed) J. W. DOUGLASS,
Acting Commissioner.

Narrow Gauge Railways.

The ordinary gauge of steam railways in Europe and America, is four feet eight and a half inches. There is no particular reason why this should be so; but the custom has been followed on so large a scale that all attempts to introduce any other gauge have been isolated and exceptional. Under the auspices of the great English engineer Brunel, who had a genius for novel and striking effects, two railways were built in England, one with a six-foot gauge and the other with a seven-foot. But the effort was not successful, and the multiplication of the common gauge went on faster than ever. In the United States, the six-foot gauge has been imitated on many long lines, though, as compared with the general mass of our roads they are exceptional. The seven-foot gauge has never been obtained here. In the Southern States, the scheming slaveholders made all their roads of a wider gauge than ours, in order to keep them separate and prevent connection. They are all five feet or over, though none of them are six feet. In Ohio, the general gauge used to be four feet ten inches, but the difference between this and the common gauge was so little that by the use of the broad-tread railway truck, cars run over both lines. Recently, the Erie Railway has adopted a car that has an adjustable truck, so as to run over the broad and common gauges without breaking bulk.

In England, latterly, a movement has been commenced in favor of railways still narrower than the common gauge, in order to get rid of some portion of the enormous cost of construction and rolling-stock. In deep cuts, tunnels and high embankments, this is a serious matter. But the great expense is in the rolling-stock, and it is calculated by engineers that the dead weight upon the road consequent upon the width of the gauge and of the cars is far too great, and ought to be avoided on lines where the traffic is light. It was for this reason that the narrow gauge railway was built in Wales, and has been found to save a large amount of money. We recently adverted to the construction of a similar line in Pennsylvania at Hokendauqua. But it seems that the movement has obtained great headway in Sweden, Norway and Russia, for which countries it appears to have been exactly the one thing needed to enable them to go ahead with their railway improvements on a large scale. These narrow-gauge railways can be built for so much less, and cost so much less than the common gauge for repairs and rolling-stock, that in Sweden, where money is scarce, roads can be now built and run under this system that otherwise would have been impossible. So long as the old common gauge was adhered to, the railway system of Sweden lingered along in an unfinished and neglected condition, for lack of means to complete the work, and, as a consequence, the industrial interests of the country suffered heavily. Of late there has been a revival of Swedish industry, and with it there has come a fierce contest over the railway gauges, resulting in a decision by the government to complete the system with the common four feet eight and a half-inch gauge, but with light rolling-stock, using, however, for the branch lines, the narrow gauge of three feet six inches. Norway, not being hampered at all on the subject, has adopted this narrow gauge for all her railways, the main lines having been built of that gauge under the auspices of her able engineer, Carl Pihl. This, therefore, may be considered the uniform gauge for Norway, which is the only country in the world where it has obtained full sway.

Under the influence of this movement in favor of cheap roads, lines are being constructed rapidly in both Sweden and Norway.

In Russia, two railways of this narrow gauge are being experimentally built, the one by the government and the other by individuals, and should these prove satisfactory, there can be little doubt that Russia will at once avail herself of this cheap new system to build branch railways in all directions through her vast empire, especially in the sparsely settled districts. As British capitalists furnish most of the money for these new railways in Sweden, Norway and Russia, and British rail-mills supply the iron, there can be little doubt that the controversy, on this subject of the gauge, that has been raging in England for some years, has been carried to the Continent to be tested, as the resistance in England did not allow of a fair chance there. The English have been seeking anxiously for some cheaper method of railway building than their own, in order to multiply lines faster in India, Australia and Canada. They have been studying the American system, and have even invited American engineers to undertake the construction of lines in India on our plan.

The new narrow gauge is an effort in the same way and for the same end, and at present it looks as though it might be a very valuable novelty. Here, in Pennsylvania, where the ground is so rough and difficult, and the cost of construction greater than anywhere in America, this holds out the prospect of cheaper methods of building, and the example already set at Hokendauqua is likely to be followed. We would call the attention of railway men to the fact that this narrow gauge seems likely to enable branch lines to yield a profit that, under the old system, have always failed to do so. The Hokendauqua line is less than three feet gauge. The European gauge, however, is intended for freight and passengers both, and appears to be adapted to branch lines generally. We should think it exactly the thing for branch lines in South Jersey, Delaware and the eastern shore of Maryland, where the traffic is light and economy most desirable. There can be little doubt that, in the wild and remote Western regions, there are lines where this gauge would exactly answer the purpose of rendering the work profitable. On lines that are not destined to be parts of through routes, there is no good reason why the narrow gauge should not be made to answer. This is highly important to commerce, as the expensiveness of a railway is saddled upon the cost of transportation, and has to be paid over and over again constantly by the consumers. Great speed is not essential to all articles of trade, yet on the present railways all are treated alike. Engineers on many routes are seeking lower grades to reduce the cost of working, and it is already a question whether low speed may not be also an object.—*N. A. & U. S. Gazette, Phil.*

SINGULAR ARITHMETICAL FACT—Any number of figures you may wish to multiply by 5, will give the same result if divided by 2—a much quicker operation; but you must remember to annex a cypher to the answer when there is no remainder, and when there is a remainder, whatever it may be, annex a 5 to the answer. Multiply 464 by 5, and the answer will be 2,320; divide the same by 2, and you have 232, and as there is no remainder you add a cypher. Now take 359—multiply by 5, the answer is 1,795; on dividing this by 2 there is 179 and a remainder, you therefore place a 5 at the end of the line, and the result is again 1,795.

The Unit of Length.

The battle of the Standards is over, and we may say the Metre has gained the victory. The need of a new system of weights and measures to amend the strange diversities which disfigure our practice being admitted, the question has once more been started—Should we once for all found our system on a natural basis? The pendulum vibrating seconds in a certain latitude, was long ago proposed as a universal basis of linear measure, and the House of Commons somewhat countenanced it years ago, by prescribing that the length of the yard shall be determined by the length of the second's pendulum. But the action of gravitation, on which terms of the vibration depends, is subject to so many variations and disturbances, that the quantity sought can not, even on the same spot, be absolutely the same at all times. The real length of a normal pendulum is almost unattainable, so limited is our knowledge of the force of gravity on land and sea. A more certain basis for a natural unit has been found in the polar axis, the length of which, according to Sir John Herschel, bears a close relation to our imperial inch, and has the advantage of avoiding the many causes of error resulting from the physical peculiarities of the countries through which any measured arc may happen to pass. But are our physicists agreed as to the real length of the polar axis, and would it be worth while to make any alteration in our weights and measures for the sole purpose of attaining some scientific correspondence between the unit in use and a unit founded on nature?

The advocates of the metre rest their arguments on a much broader basis. They do not assert that the metre is absolutely and mathematically the ten-millionth part of the quadrant of the earth, they know that the meridians of places differing in longitude are not all precisely the same length; and they admit that were we now to make a new measurement with our better instruments and more extended information, we might attain much greater accuracy than was arrived at by the French philosophers at the end of the eighteenth century. What commends the metre above any other unit, is the fact that it is already a cosmopolitan unit, widely recognized, and in general use among many nations; and that while other units remain as philosophical abstractions, the metre is the basis of a system, not only perfectly complete, homogeneous and scientific, but simple and practical in all its parts. Any slight error in the determination of the metre, is more than counterbalanced by the extreme simplicity, symmetry and convenience of the metric system; and not the least of its recommendations are, that the unit of linear measure applied to matter in its three forms of extension, viz: length, breadth and thickness, is the standard of all measures of length, surface and solidity; and that the cubic contents of the linear measure in distilled water at a temperature of great contraction, furnished at once the standard weight and measure of capacity.

When we said that the battle of the Standards is over and that the Metre has gained the victory, it was meant that, for practical purposes, all opposition to the introduction of the metric system has been abandoned, and that Parliament and the Government are now left to introduce it in such a way and at such a time as may be found at once practicable and satisfactory. The use of the metric system has been legalized for the last half dozen years, but it was not till quite lately that the

whole question was submitted to the calm deliberation of a Royal Commission. The Standard Commissioners, who included among their members the Astronomer Royal, the President of the Royal Society, and the late Master of the Mint, considered the question of the introduction of metric weights and measures, in any form *ab initio*. And after careful examination they gave their verdict in its favor in the following terms:

"Considering the information which has been laid before the Commission—

"Of the great increase during late years of international communication, especially in relation to trade and commerce.

"Of the general adoption of the metric system of weights and measures in many countries, both in Europe and other parts of the world, and more recently in the North German Confederation and the United States of America.

"Of the progress of public opinion in this country in favor of the metric system as a uniform international system of weights and measures.

"And of the increasing use of the metric system in scientific researches and in the practice of accurate chemistry and engineering construction.

"We are of opinion that the time has now arrived when the law should provide, and facilities be afforded by the Government, for the introduction and use of metric weights and measures in the United Kingdom."

The Commissioner further recommend that metric standards, accurately verified in relation to the primary metric standards at Paris, should be legalized; that verified copies of the official metric should be provided by the local authorities for inspectors of such districts as may require them; and the French nomenclature, as well as the decimal scale of the metric system, should be introduced in this country. The Commissioners, whatever might have been their predilections, could not resist the fact that the civilized world pronounced itself for the metre, and they sanctioned its legalization. What is to be regretted is that they stopped there. Since the complete substitution of the metric for the present practice is now practically certain, would it not be much better to prepare for the change and carry it into effect as speedily as possible? No advantage can come from a policy of indecision, and we trust that the Legislature may adopt a more definite course than the one sketched out by the Royal Commissioners. Let it not be imagined that the people will give themselves the trouble of learning the new system, however beautiful and easy, so long as its use is not absolutely necessary. With all the desire of the teachers to introduce it in the schools, they find they can not teach the old and the new tables. They can not afford the time. A compulsory measure is the only method of dealing with the question.

The Warden of the Standards being now employed in procuring Metric Standards, it may be well to add that the mode of constructing them, either from the original Metre at the Archives, or from the copy at the Conservatoire des Arts et Metiers, has been much debated. The International Statistical Congress, held at Berlin, decided "That the care of preparing and putting into execution the regulations to be followed in the construction of the standards, and of the system itself, should be intrusted to an International Commission, which will also see to the correction of the small scientific defects of the system." The International Geodesical Conference,

held at Berlin in 1867, decided: "In order to define the common unit of measures for all the countries of Europe, and for all times, with as much exactness as possible, the Conference recommends the construction of a new prototype European Metre. The length of this European Metre should differ as little as possible from that of the Metre of the Archives in Paris, and should in all cases be compared with the greatest exactness.

"In the construction of the new prototype standard, care should be taken to secure the facility and exactness of the necessary comparisons." And "the construction of the new prototype metre, as well as the preparation of the copies destined for different countries, should be confided to an International Commission, in which the States interested should be represented." Since then, the Imperial Academy of Science of St. Petersburg has taken the matter in hand, and a committee of the Physico-Mathematical class, consisting of MM. Struve, Wild and Jacobi, has made a report on the subject, observing that the standard metric weights and measures of the various countries of Europe and of the United States differ by sensible though small quantities from one another. They expressed their opinion that the continuation of these errors would be highly prejudicial to science. They believed that the injurious effects could not be guarded against by private labor, however meritorious, and they recommended that an International Commission should be appointed by the countries interested to deal with the matter.—*Nature*.

—We take the following from the *Colorado Tribune* of Sep. 7: "Engineers go out on Monday to commence the surveys of one of the grandest enterprises for the improvement of an unsettled country that ever secured the attention of man. This is no less than the building of a gigantic irrigating canal, more than 100 miles in length, commencing in Platte Canon, before the river debouches upon the Plains, and extending to the head of the Republican river in the eastern part of the Territory. This immense canal will irrigate no less than *three million of acres of land*, now useless except for stock purposes, and will be, if constructed, the means of making a place where a million people may find homes. The money to pay for the survey is raised and the parties pushing it on, can control the means to build the canal."

NARROW GAUGE RAILWAYS.—The Duke of Sutherland has returned to Dunrobin Castle from his inspection of the Norwegian narrow gauge railways which his Grace has just made in company of Mr. Fowler of Braemore. Upwards of a hundred miles of railway on the 3 feet 6 inches gauge have been carried out in Norway by Mr. Carl Pehl, the Government engineer, and they have been most successful for the light traffic of that country in their economical construction and the convenience of their smaller carriages and wagons. The supporters of this system have no doubt that if the northern parts of Scotland could have had the advantage of such a cheap description of railways, a much greater extent of the country would ere now have been supplied with railway accommodation. The average cost per mile, including plant, is about 4,000*l*, and the works of the railway and stations, and the quality of the plant, are said to be all that could be desired for public convenience.—*Inverness Courier*.

Burlington, Cedar Rapids & Minnesota Railroad.

Forty car loads of iron have been received for the track north of West Liberty. The *Enterprise* says the work is progressing finely. The bridge across the river at Cedar Rapids will be completed in less than 30 days. The grading will be finished and the road ready for the iron from Cedar Rapids to the Cedar Co. line during the present month. The grading is completed within 15,000 yards of the Johnson Co. line from West Liberty. Ninety days will finish the work from West Liberty to Cedar Falls.

The *Hawkeye* states that business since its completion to West Liberty has increased largely. At Columbus Junction and West Liberty, passenger houses will be built jointly with the C. R. I. & P. The house just completed at Wapello is a pattern of neatness. extensive stock yards will be built at Wapello, Columbus Junction, Cove, Nichols and West Liberty at once.

The work on the extension north of West Liberty will soon be finished to the Cedar River, ready for the iron. The bridge over the Cedar is progressing, and as soon as completed, track-laying will commence southward, meeting the force from West Liberty northward. On the second division, from Cedar Rapids to Cedar Falls, the iron is laid to within five miles of Waterloo, and the line will be opened from Cedar Rapids to Waterloo by the first of Oct.

With reasonably good weather, the Co. expect to have their line completed from Burlington to Cedar Falls, so as to open up the great air line route from St. Louis to St. Paul early in November.

This route will be made up of the R. R. I. & St. L. from St. Louis to Monmouth; C. B. & Q. from Monmouth to Burlington; B. C. R. & Minn. from Burlington to Cedar Falls; B. F. & Minn. from Cedar Falls to the State line, and Minn. Central from the State line to St. Paul.

The Pennsylvania Railroad Going South.

[From the Philadelphia Enquirer]

Until recently the railroad efforts of Pennsylvania have been made mainly with a view of controlling the trade of the West and Northwest. The Pennsylvania Central sought everywhere the means of reaching the valley of the Mississippi and the lakes, adding to its rails, as soon as the Pacific Railroad was finished, a connection with that vast enterprise. The occurrences of the war of the Rebellion rendered railroad extension to the South impossible and inexpedient, but now that peace has been restored, the Pennsylvania Railroad is disposed to turn its attention Southward, and extensive improvements in that quarter have been projected. A line from Pittsburgh to Charlestown, Kanawha county, West Virginia, will open communication between the Ohio and the Kanawha river, which is the center of an extensive trade, and the headquarters of a district which contains abundance of coal and salt springs. It is on the high road from Richmond to the Ohio river, and the great Virginia Central Railroad, from Richmond to the Ohio, must pass through it. There is steamboat navigation on the Kanawha to the Ohio, and a rich country is drained by the industry of that region.

This line will eventually be extended through West Virginia and Kentucky, and

will be an important route for travel and freight.

The Cumberland Valley Railroad, which connects with the Pennsylvania Railroad at Harrisburg is now projected to be extended across the Potomac and down the Shenandoah Valley through Virginia, until it reaches the Virginia & Tennessee Railroad, one of the great lines to the Southwest. The Baltimore & Potomac Railroad—which will scarcely be the Baltimore & Potomac Railroad—will extend south from a point on the Northern Central north of Baltimore, and strike through Eastern Virginia to Richmond, and even beyond. Thus these three roads will penetrate Eastern, Central and West Virginia, and bring to the Pennsylvania Railroad and to Philadelphia a trade which has hitherto been considered the proper portion of Baltimore, and control routes far beyond, even to Nashville, Memphis and New Orleans. There is much being done in railroad matters, the effect of which is scarcely imagined at this time, but it will become more and more apparent as the years roll on.

Another Pacific Railway.

[From Harper's Magazine for September.]

The railway linking the far West to the far East, was opened in July last. The full significance of that important announcement can scarcely be estimated. It will change the aspect of a great and productive region. The Indian already stands aghast as he sees the line of cars—that greatest of all great "medicines"—rattling along the plains where he hunted the buffalo, and withdraws to the northward. He hears in the whistle of the engine the death-knell of all his race. The trapper hears it, and hurriedly gathers up his traps and little "fixins," and with his squaw and half-breed brood, retreats before the surging flood of emigration. They hear, not afar off, "the rush of waves where soon shall roll a human sea"—a sea that shall sweep them before it.

And no sooner has one railway been opened than another is proposed. The engineers have already been out and made the survey. The Northern Pacific is spoken of as a rival to the Central Pacific, and the land-holders and lot-holders of the Puget Sound are discussing the location of the great terminal city. The eyes of all are turned to a spot which is destined to play no mean part in the history of our national progress and civilization. Bills may be proposed and defeated, particular schemes may be discussed and delayed, but let any one take a look at the position and contour of the north-western corner of our country, and he will be convinced of its importance, and foresee its manifest destiny. There is a great inland sea stretching up 200 miles from Cape Flattery, studded with fertile islands, surrounded by pine-covered heights, and nearer, by 800 miles, to China than San Francisco—and nearer, also, to New York. Instead of sage-hush desert and salt plains, there is a fertile belt, under which lies a bed of miocene coal, stretching all the way from Illinois to Washington Territory. Let any one consider the increasing commerce with China, of which we have merely tasted the first fruits, and acquaint himself with the character of the country behind it, and he will perceive why so much attention has been directed to this part of the Republic; he will be satisfied of the wisdom manifested in preserving intact the boundary line which terminates so near it, and discern a reason for the present anxiety to push through the Northern Pacific Railway.

As regards the cotton crop the press reports from Charleston show a material increase in the crop, from 2,432,039 bales in 1868-69 to over 3,000,000 bales in 1869-70. The statement for the sea island crop shows 26,656 this year against 17,956 last year. The general prospect of upland crop of cotton to this time is, on the whole, highly favorable. There has been an increase of area planted and better cultivation. These elements have induced the opinion that the growing crop would excel the last and a yield of 3,500,000 bales and over has been talked of, although it may not be possible to obtain those sanguine expectations. Their realization may be doubtful on account of the late general rains.

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Mathematical Instrument Makers, consisting of Wm. J. Young and Chas. S. Heller, was dissolved shortly before the death of Wm. J. Young. The undersigned, the late partner of said firm (who was with Mr. Young continuously for fifteen years, will continue in the same line of business, at No. 33 North Seventh street, Cor. of Filbert.

CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

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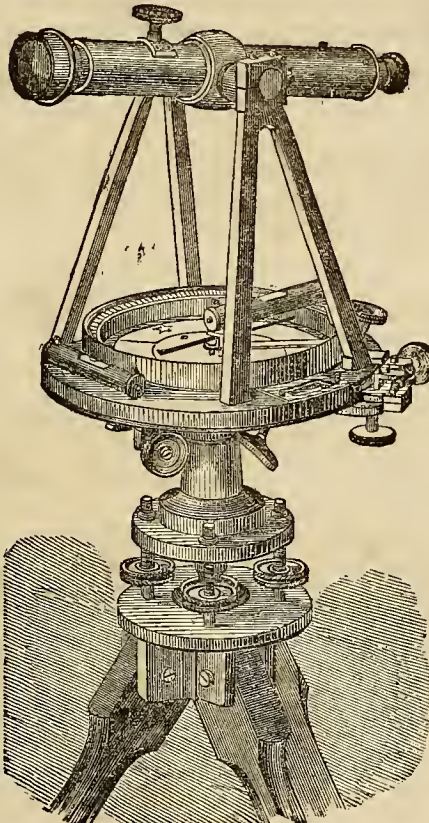
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do do do.....	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do.....	2:30 P. M.	5:40 P. M.
do do do.....	6:30 P. M.	7:30 A. M.
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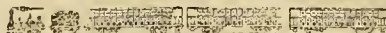
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W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A.
M. Daily (except Sundays). Stops regularly
at Walton, Ellettsburg, Sparta, Liberty, Worthville, Camp-
bellsburg, Lagrange, Pewee Valley, Anchorage; when
flagged, at South Covington, Maurice, Pendleton, Bank
Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur,
Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves
Cincinnati at 1.20 P. M. Daily (except
Sundays). Stops only at Walton, Worthville, and La-
grange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M.
Daily (except Sundays). Stops regularly
at Walton, Ellettsburg, Sparta, Liberty, Worthville,
Campbellsburg, Sulphur, Lagrange, Pewee Valley, An-
chorage, and when flagged, at South Covington, Maurice, Pen-
dleton, Bank Lick, Verona, Zion, Eagle, Carrollton,
Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cin-
cinnati at 11.15 P. M. Daily (except
Sundays). Stops regularly at Worthville, Lagrange, and
when flagged, at Walton, Verona, Ellettsburg, Glencoe, Sparta,
Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee
Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington
Train, arriving at Frankfort at 6.14 P. M., Lexington
7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains
and Quicker Time than any Line from Cincinnati.

HENRY STEEFEE, Gen. Ticket Ag't

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Lib-
erty st., connects at Hampton Junction with the Dela-
ware, Lackawanna and Western Railroad, and at East on
with the Lehigh Valley Railroad and its connections,
forming a direct line to Pittsburg and the West, without
change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago,
Cincinnati, St. Louis, etc., with but one change of cars.
Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as
follows:

6:55 A. M.—For Easton, Bethlehem, Mauch Chunk,
Wi Famsport, Wilkesbarre, Mahanoy City, Tuckahoe
&c.

7:15 A. M.—For Somerville.

8:30 A. M.—For Flemington, Junction, Stroudsburg,
Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 M.—For Flemington, Easton, Allentown, Mauch
Chunk, Wilkesbarre, Reading, Columbia, Lancaster,
Ephrata, Litz, Pittsville, Scranton, Harrisburg, &c.

3:35 P. M.—For Easton, Allentown, Mauch Chunk
and Belvidere.

4:30 P. M.—For Somerville.

5:25 P. M.—For Somerville and Flemington.

6 P. M.—For Easton and intermediate stations.

7 P. M.—For Somerville.

7:20 P. M.—EMIGRANT—Stopping only at the princi-
pal stations.

9:00 P. M.—For Plainfield.

11:50 P. M.—For Plainfield, on Wednesday and
Saturdays only.

FOR THE WEST.

9 A. M.—WESTERN EXPRESS, daily, (except Sundays,
for Easton, Allentown, Harrisburg, and the West without
change of cars to Cincinnati or Chicago, and but one
change to St. Louis. Connects at Harrisburg for Erie and
the Oil Regions. Connects at Junction for Stroudsburg,
Water Gap, Scranton, &c. Connects at Phillipsburg for
Mauch Chunk, Wilkesbarre, &c.

5 P. M.—CINCINNATI EXPRESS, daily (except Satur-
days) for Easton, Bethlehem, Allentown, Reading, Harris-
burg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars
to Pittsburg and Chicago. Connects at Junction with
Delaware, Lackawanna and Western Railroad for all sta-
tions to Scranton. This train will be run to Easton on
Saturdays as a local train, stopping at principal stations.

8 P. M.—WESTERN EXPRESS TRAIN, daily, for Easton
Allentown, Reading, Harrisburg, Pittsburg, and the West
—connects at Harrisburg with train for Williamsport, Erie
&c.

Sleeping cars through from Jersey City to Pittsburg
every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15
8:15, 8:30, 9, 9:20, 10:30, 11:40 A. M.—12 M., 1:00, 2:00
3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:15,
7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 P. M.

Tickets for the West can be obtained at the office of the
Central Railroad of New Jersey, foot of Liberty st., N. Y.,
at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at
No. 10 Greenwich st., and at the principal hotels.

R. E. RICKET, Superintendent

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, -- THURSDAY, OCTOBER 6, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
" column, single insertion.....	7 00
" " per month.....	14 00
" " six months.....	55 00
" " per annum.....	110 00
" page, single insertion.....	25 00
" " per month.....	40 00
" " six months.....	135 00
" " per annum.....	240 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'rs.

Atlantic & Lake Erie Railroad.

We have already spoken of this road, but as it is destined to be a very important one, it is perhaps well to describe it more in detail. Of this road 186 miles are now under contract, and on some portions of the road the work is actually going on. This is particularly the case south of New Lexington and in the valley of Sunday creek. We may here say that having heretofore spoken in strong terms of the vast deposits of coal and iron in the valley of Sunday creek, we have now the pleasure of referring the reader to conclusive evidence of our correctness. In the "Industrial Exposition"—an Exposition which does credit to and will be of immense value to this city—may be found samples of the coal and iron of Sunday creek valley. A shaft (for it is not a lump) of coal is deposited there from the "12 foot vein." At the same time we may add that it does not do full justice to this vein; for it seems to be a broken or irregular sample, while in fact the 12 foot vein is an almost uniform and homogeneous mass of the best coal in the valley of the Ohio. It is the "Brier hill" coal, that is, the same kind of coal with that of Brier hill, Mahoning county. It is this Brier hill coal and Lake Superior iron which have made Cleveland the most prosperous town in Ohio. So it will raise, before long, factories and towns in Sunday creek valley.

But we mean to speak specially of the Atlantic & Erie Railroad. This will have one great advantage, which has been for some time a desideratum among Ohio railroads; this is a road which will go transverse, or, across the other roads, and not in the same direction. Leaving Toledo on a line direct to Pomeroy, it will cross the Fremont road at Fostoria, the Sandusky road near Corry, the Pittsburg & Chicago line near Bucyrus, the Bellefontaine and Great Western lines soon after, the Cleveland & Columbus at Mount Gilead, the Panhandle road at Union station (Licking county), the Muskingum Valley road at New Lexington, the Hocking Valley road at Chauncey, and the Marietta road soon after. Thus the Atlantic & Lake Erie Railroad will cross no less than *ten other roads*, and at angles so great that there can be no competition with them. But at each of these crossings there must be a number of passengers who wish to turn off and go to the lake, the Ohio, and to various interior points.—Then there being no competition with other roads, in its direction, this road will drain (so far as going north to Toledo or south to the Ohio is concerned) a great breadth of country. Thus considered, as a railroad line into which many others flow, and as it regards north and south the natural local artery of the interior, we shall anticipate for this road some important results. Its local business will probably be very large. But undoubtedly one of the leading objects in the construction of this road will be the development of the great mineral deposits of Sunday creek valley. It is quite obvious that the coal and iron there can not be made available without a railroad, and equally obvious that the railroad would make them available. In this respect, there are several aspects in which to view the advantages to the railroad. Taking Toledo as a center, and there is a great country around without coal, and which can be supplied from no coal beds so cheaply as from those in southern Ohio, provided there was a direct railroad to them. Again, take Bucyrus (Crawford county) as a point in northern Ohio, and we find that an extensive country there must eventually be supplied with coal from the Sunday creek region. Here, then, will be a great local business. Then, looking southward, and supposing the road to have reached some good point on the Ohio, will not that cause a great export of coal from the Sunday creek region down the Ohio? You will say, can it compete with the Pittsburg and the Pomeroy coals? Not if it were of the same kind; but it is not. Professor Andrews told us the Sunday creek coal was of the *same kind* with that of Brier hill, and if so, it is different in kind from any on the Ohio river. For the peculiar purposes for which it is suited, the coals now used on the Ohio river will not compete with it. Hence it can be exported profitably. For the purposes of smelting iron, and in iron manufactures, this

coal is superior, and will doubtless be in demand, and largely exported down the Ohio. We say nothing here about Cincinnati, because this city gets ample supplies of coal from Pittsburg, Pomeroy, the Kanawha and the Marietta Railroad. But for the reason that it is of a different and in some respects a better quality, no doubt it will be used in Cincinnati in considerable quantity. But, if the Atlantic & Erie road can be built at an early period, it will no doubt develop numerous furnaces and forges and factories on its line, and when a few more years are elapsed, there will be such a development of industry along the line of this road, and especially in Perry and Athens counties, as the world has seldom seen. We know that many look upon this as a mere sanguine statement, but we have been there, and know the wonderful resources of that country; and we have seen immense results from far less causes. We hope, therefore, to see the Atlantic & Erie Railroad speedily made, and the immense mineral region of Ohio speedily developed.

Knickerbocker Life Insurance Co.

RATIO OF EXPENSE.

In looking over the last annual report of this well managed company, we find that its income exceeds \$5,000,000, that it had 22,078 policies in force, which secured \$68,589,268, and that at the close of its last fiscal year the Knickerbocker had a surplus capital over all liabilities of more than \$1,250,000.

This exhibit speaks well for the amount of the business done by the company, and of its secure financial standing. It is unquestionably one of the most substantial organizations of the kind in the country. But when we find that in the transaction of this vast business the ratio of expense is only 14½ per cent. to income, we feel that its management is worthy of the highest commendation, and that it is due to the company and the public that the fact be more generally known.

The economical administration of the affairs of a great corporation like this is such a merit as is sure to promote success. Nothing inspires such confidence. It is indeed the reform necessary in all our insurance organizations, and one that policy-holders should look to and demand, because to a large extent their safety depends upon it.

If the Knickerbocker can preserve in the future the proud position of being about the most economically managed institution of the kind in the country, it will lead in its line of business, and verify the predictions of its friends, who had faith in its success from the beginning of its prosperous career.

The net gain from the sale of revenue stamps for the month of July, 1870, over the sales for the same month of 1869, was \$71,067 10. The gain on spirits and fermented liquors for the same period was \$1,287,285.

Louisville, Cincinnati & Lexington R. R.

FOURTH ANNUAL REPORT.

A beautifully printed pamphlet of eighty pages, bearing the "Compliments of Wm. MAHL, Auditor," reminds us that the "Louisville Short Line" has completed another year of successful operation.

The statement of President GREEN is a satisfactory summary of the condition of the Company, and will hardly bear excision, we therefore give it entire. It is dated Sept. 1, 1870:

The consolidation of the Louisville & Frankfort and Lexington & Frankfort Railroad Companies into the Louisville, Cincinnati & Lexington Railroad Company, adopted at the last annual meeting of the stockholders of the two first mentioned companies respectively, and under which you organized at the first general meeting of stockholders of this Company on the 5th of October last, has been fully ratified and confirmed by an act of the General Assembly, approved February 9, 1870, with a proviso that your board shall hereafter consist of twelve directors instead of nine, as provided in the agreement of consolidation. A supplemental act provides that ten of the directors shall be elected annually by the stockholders, the stock owned by the State of Kentucky not being entitled to vote therefor; and that two directors shall be appointed annually by the Governor so long as the State shall remain a stockholder.

Further legislation authorized the issue and sale or hypothecation of additional mortgage bonds to the extent of \$1,000,000, and of additional capital stock to an amount not exceeding \$1,000,000. Authority was also conferred on this Company to construct and extend branch roads through Scott and other counties, receiving and applying to such objects county, city, or town bonds in payment for subscriptions to the capital stock of the Company as may be agreed.

FINANCIAL.

The \$1,000,000 additional bonds authorized have been issued, by order of the board of directors, payable 30 years after their date, on the 1st of April, 1870, and bearing interest at the rate of 8 per cent. per annum; and a mortgage lien has been made, to secure the payment thereof, on the property and franchises of the Company, subordinate to liens previously existing. The greater part of these bonds have been hypothecated as collateral in lieu and substitution of the unsold preferred stock hitherto pledged on the floating debt of the Company, and in the negotiation of further loans to meet the cost of the construction of connecting roads at Louisville and into Cincinnati. About \$500,000 of preferred joint stock which was hypothecated for debt has been thus retired.

The floating debt of the Company is, in greater part, at long time, and, while it can be carried on the bonds as collateral without great inconvenience, is costing the Company a less rate of interest than would be paid on the proceeds of the bonds at any price at which they could now be negotiated. Besides the saving in interest, the Company has made a considerable saving in premiums on gold by making gold loans to meet our hills for iron. Our second bonds are generally known and treated as a good security, and with the

connections of our road completed and its business established, will be sought for investment in our home market at a price materially higher than they will now command. Should no unforeseen trouble defeat the completion of the Cincinnati and Newport railroad bridge this season, and no great financial reversion unsettle ordinary moneyed values, we can have no difficulty in disposing of the securities of the Company during next summer, and liquidating the floating debt. The securities of the Company already issued are sufficient, even at the present market value, to pay all the liabilities of the Company, build its connections, and leave a balance of between \$100,000 and \$200,000; but the Company could not think of selling the preferred stock bearing 9 per cent. at anything near its present market value. It is far preferable to carry a small portion of the floating debt until it can be paid from earnings, and sell no more preferred stock.

CINCINNATI BRANCH

Your Short Line branch road from Lagrange to Covington, though still uncompleted, has been open for business and in constant operation during the year past, and has made a gratifying success in demonstrating to the traveling and shipping public its comfort, capacity and safety as a first class road. But the embarrassment of its unfinished connections, both at Louisville and Cincinnati, with the necessary delay and expensive haul of both freight and passengers, have deprived it of the business to which its location and advantages entitle it, and essentially reduced the profits on the business it does command. These great obstacles have unavoidably existed a year too long; and have occasioned very serious loss and embarrassment to the operations of the road and the finances of the Company.

CONNECTIONS.

The protracted controversy in the City Council as to the route of connection through Louisville has been terminated by a contract between this Company, the Louisville & Nashville Railroad Company, and the City of Louisville, fixing a satisfactory route for the construction of a connecting road at the joint cost of the two railroad companies; and we expect to be put in possession of the roadway and commence work upon its construction by the date of your meeting. The iron has been provided, and the connecting line should be finished and in operation by the middle of November. The connecting road through Newport will also be completed during the fall; and we have the most confident assurances that the railroad bridge across the Ohio river at Newport will be finished by the 1st of December.

The funds required on our part to build these connections have been arranged for, at long time and lenient rates of interest, on pledge of the second bonds of the Company. The strong companies with which we connect at either end have exhibited a gratifying interest and appreciation of the value of our connections in the liberal aid they have agreed to extend for its completion.

OPERATIONS OF THE ROAD.

I believe it is the history of all new roads that the first year of their opening has never developed the business they are to command; but in our case, operating an unfinished road, with a long break over which we have to haul at either end, against two competing roads without these embarrassments, and with

scarcely any county roads open to our new depots on the line to command local business, the earnings exhibited for the past year can be no criterion from which to judge of or scarcely to estimate our future earnings. I believe the earnings of the new line will be at least doubled, and without any increase of expenditures, after the completion of its connections becomes generally known to the public. The operating expenses, which for the first five months of the past fiscal year look very large, but were necessarily greater on account of operating a new and unsettled road than ordinarily, have been reduced to about an average of about \$56,000 per month; at about which standard, or not exceeding \$60,000 per month, they can be maintained, even with a considerable increase of business and earnings. These expenditures include always a full monthly proportion of the annual outlay for rails, ties, and other material and labor necessary to keep up the renewals and repairs of the road and equipments in the best operating condition. The good condition and quality of the road bed, its tunnels, bridges and culverts, are not only well maintained, but annually improved.

Should our confident expectations of increased business on the new line be realized the net revenues of the Company will at once exhibit a handsome margin above current liabilities, on account of interest and dividends upon preferred stock. But sound policy would dictate that the stockholders should not be urgent for a too hasty resumption of dividends on the common stock. The first surplus earnings available for dividends will be worth a great deal more to the common stock if applied to the reduction of the floating debt and the permanent retirement of the unsold preferred stock. The common stock of the Company is so small in amount, compared with the length of the roads and value of property, that a comparatively small margin of net earnings above the interest account will pay good dividends. If the policy thus indicated be pursued, and no more preferred stock be sold, I am sanguine that within a few years the balance of the floating debt not paid by the sale of bonds will be paid off from earnings, and the common stock be in receipt of dividends at the rate of ten per cent. per annum.

CONCLUSION.

I can not conclude this report without expressing my profound regret at the great loss to the Company I am sure you realize in the retirement, from illness and subsequent death, of my distinguished predecessor, the late Hon. W. A. DODLEY, the first president under the present organization, and who had so long, faithfully, and efficiently managed your affairs as chairman of the joint committee of the two previous companies. It is a sad reflection that he could not have lived to conduct to a brilliant success and complete the triumph of his great enterprise in the projection and rapid construction of the important and valuable link in the great line of travel and transportation between the North and South, which your Short Line branch road to Cincinnati is destined to constitute.

In the practical business of operating the road I have to acknowledge the invaluable aid of our very able and experienced Superintendent, Colonel GILL. The Company has been fortunate in securing the services of Mr. GIMPERLING as Asst. Supt., whose entire control in the movement of trains exhibits a general success and freedom from collisions or other mishaps that will compare favorably with any other road in the country.

Directors—Joshua F. Speed, J. Guthrie Coke, J. W. Kaifus, J. M. Monohan, G. Spratt, J. B. Wilder, G. W. Sutton, M. C. Johnson, F. K. Hunt, Henry Bell, for the stockholders; J. Lyttleton Cooke, E. D. Standiford, for the State. Norviu Green, President; Joshua F. Speed, Vice President; Samuel Gill, Gen. Supt., J. E. Gimperling, Asst. Supt.; W. H.

Beynroth, Secy. and Treas.; Wm. Mahl, Auditor; G. R. Talcott, Engineer; Edward P. Wilson, Gen. Freight Agent; Henry Steffee, Gen. Ticket Agent; Sidney B. Jones, Gen. Pass. Agent.

Cincinnati, Sandusky and Cleveland Railroad.

We have received the last annual report to the stock and bondholders of this interest, from which we extract the following items.

President Sloane says:

Since my last annual report the business of the road has shown a stability which, under the great competition to which we have been subjected, is gratifying. The volume of our business has increased, but rates have been so low that the gross increase of earnings has not been as great as would otherwise have resulted.

We now compete at Sandusky with the Baltimore and Ohio Railroad Company, who have a Lake Erie Division, by a perpetual lease of the Sandusky, Mansfield and Newark Railroad, which line the former Company commenced operating July 1, 1869, and which Company has made most extraordinary exertions for business over its line to and from Sandusky; yet, notwithstanding this diversion of some of the business formerly transacted over our road, our earnings show an increase for the fiscal year of \$15,007 54, as will be seen by reference to the report of the Treasurer herewith.

The condition of your property is such at this time that, excepting fencing, and masonry required by the City of Tiffin to cover two streets, one on each side of the Sandusky river, no more than the usual expenses of maintaining your property, will, hereafter, in all human probability, be required; and we can safely speak of your road and property as comparing favorably with any first class line in the country.

During the year an important arrangement has been concluded, being ratified by a large vote of our Stockholders, for the completion of the road between Springfield and Columbus, Ohio, and for its perpetual lease to this Company.

The road is to be completed by September 1st, 1871, and it is anticipated that it will bring a large increase of business to our main line. We shall then have the best and most attractive route between Cincinnati and Columbus, offering to the tourist or mercantile traveler the inducements of such cities as Springfield, Dayton, Middletown and Hamilton, and traversing the most beautiful country in Ohio.

In entering Cincinnati we shall have a great advantage by reason of the location of the railroad depot, readily approached without running through streets, and trains not delayed by restrictions as to speed, and, at the same time, most accessible to the city railroads and carriages.

We must control between the terminal points a great proportion of the local travel, which is now large and rapidly increasing.

The travel over our road shows a fine increase, and during the year not a single passenger has been injured or killed.

The channel of Sandusky Bay is being improved and deepened, so that the commercial importance of our lake port is increasing.

Put-in-Bay and the Islands of Lake Erie, more accessible from Sandusky than from any other point, are becoming popular and favorite places of resort for the summer.

Large and convenient hotels, for the accommodation of the traveling public, have been and are being erected, and these attractions are adding to the passenger travel over our road, which would increase more rapidly than it does if we had better steamboat facilities for the Islands, and it is worth serious consideration whether we ought not to give such assistance to some proper party, as to induce the building of a steamer to run, specially in connection with our trains, to and from the Islands.

The road between Carey and Findlay, which was commenced the last, has, during the present year, been completed, and is being operated with satisfactory results, justifying the wisdom of the expenditure.

The earnings and expenditures are detailed in the Treasurer's report as follows:

EARNINGS.	
From Freight.....	\$498,186 77
" Passengers.....	241,508 69
" Mails and Exp.....	46,296 64
" Mile'ge, Rental, Etc.....	24,484 44
Total.....	\$810,476 54

EXPENDITURES.	
Ordin'y Expenses and Renewals.....	\$538,044 60
Int. on Bonds and Pref.	
Stock and Taxes.....	207,179 08
Sinking Fund.....	10,000 00
	\$755,223 58
Balance.....	\$55,252 86
Add avails of Assessments on C. D. & E. Stock.....	4,889 60
	\$60,142 46

The comparative earnings for the year 1869 and 1870 are	
Total Earnings 1869-70.....	\$810,476 54
" " 1868-69.....	795,469 00
Increase.....	\$15,007 54

The financial status of the Company is exhibited in this tabulated statement:

Dr.	
Cost of Railway.....	\$5,840,623 30
Materials on hand.....	51,545 12
Bonds and Stocks.....	8,100 00
Sinking Fund.....	67,523 69
Due from Railroad Companies, Agents and P. O. Dep't.....	10,166 88
Individual Accounts.....	902 08
Bills Receivable.....	175 00
Cash at Transfer Agencies.....	5,348 64
Cash on hand.....	3,460 38
	\$5,987,845 09

Cr.	
Capital Stock.....	\$2,967,800 00
Preferred Stock.....	428,646 44
Bonds—	
S. D. & C., 1st mort....	\$988,000
East'n B'ds, not ext'd....	\$9,000
S. C. & Ind.....	\$350,000
C., S. & C.....	\$1,051,851 20
C., D. & E., (exchangeable for C., S. & C.).....	19,000 00
Interest on Bonds.....	24,873 95
Dividends on Preferred Stock...	4,078 87
Bills Payable.....	49,092 11
Pay Rolls and Taxes.....	36,132 95
Due for Materials.....	59,369 57
	\$5,987,845 09

It is interesting to know the annual earnings of this popular line for the past seventeen years:

1853-4.....	\$705,783 21
1854-5.....	588,777 79
1855-6.....	575,723 18
1856-7.....	686,190 69
1857-8.....	543,680 58
1858-9.....	577,958 58
1859-60.....	439,665 62
1860-1.....	423,229 98
1861-2.....	430,130 43
1862-3.....	599,880 11
1863-4.....	600,162 16
1864-5.....	710,924 15
1865-6.....	694,520 50
1866-7.....	668,041 21
1867-8.....	717,497 72
1868-9.....	795,460 00
1869-70.....	810,476 54

The Company owns 26 engines, and these have run the past year 603,581 miles, at a cost of 6 19-100 cents for repairs, and 10 24-100 cents for fuel per mile run.

They have 31 passenger cars, 335 box, 66 stock and 165 flat cars.

During the past year 560 tons of new rail have been placed in the main track. The Findlay branch has been laid with T rail. A new Howe truss bridge has been built at Buck creek. A new bridge with stone abutments has been constructed at points near Bellefontaine, and a thorough overhauling of the culverts of the road has been had, and valuable and extensive repairs made to the yards at the principal shipping points upon the line, and to the cribbing in Sandusky Bay.

A first class passenger house has been erected at Springfield. The station buildings at other points on the road have been remodelled, and the company's warehouse at Tiffin largely improved.

The report is quite a satisfactory one, we suppose, to those who are interested in the road. The managers have had a great deal to contend with, and an unfavorable year for a large business. That they have done their duty well there can be no question, and that they have shown skill and honesty in their respective departments is not to be doubted. The road is now in excellent condition, equal to the demands of the large traffic that the present crops warrant us in predicting it will receive. Yet this old and valuable work, however well managed, will never take its correct position until it can command a portion of the enormous business of the Valley of the Miamis—possess an independent entrance to the city of Cincinnati, and thus control a large part of the lucrative business of the South, and compete successfully with any other route for the Eastern trade seeking the South-west.

This connection ought to be had, and notwithstanding the several abortive attempts that have been made to secure these results, the experiment ought to be tried again, now that the times and circumstances are so propitious for its success.

No compromises or negotiations with other companies will ever answer the purpose. These have been tried, we would suppose, to the satisfaction of every sensible man. These connections must be made, or this road must forever remain a mere feeder to other lines; valuable as a local thoroughfare, but a mere fragment of what it is capable of being.

Its present officers are:

Rush R. Sloane, President and Superintendent; L. P. Wheelock, Secretary and Treasurer; E. S. Quintard, Assistant Superintendent; John C. Buxton, General Freight Agent; H. M. Bronson, General Ticket Agent; L. H. Lewis, Auditor; Wm. Swanson, Master Mechanic.

Baltimore & Ohio R. R.

We clip from the *Baltimore Gazette* of a late date the following important statements touching the interests of this great thoroughfare:

Two most important enterprises for the city of Baltimore, which are now rapidly approaching completion, are the erection of the bridges over the Ohio river, and the construction of the Pittsburg and Connellsville Branch road. In themselves they are valuable as affording additional facilities for travel and traffic, and as opening up new regions to Baltimore trade. Yet, important as they are, they are really but links in the immense development which the powerful corporation which has its terminus in Baltimore, and whose interests are bound up with those of many of our citizens and with that of the State itself, is at no distant day destined to take.

The bridges over the Ohio are in themselves connections from shore to shore, which save the cost and trouble of transshipment. Yet, so important is this, that the Baltimore and Ohio Railroad has thought it a matter of economy to expend \$2,000,000 upon their construction. The bridge at Parkersburg will be completed within forty days, and will at once furnish an uninterrupted line of rail communication between Baltimore and Cincinnati, as well as Columbus and other interior towns in Ohio. This line, as compared with Northern trunk lines connecting with the seaboard, is shorter than any other, and can be run at less expense and in less time. In other words, Baltimore becomes at once the cheapest port of export and entry for a large portion of southern Ohio, and the nearest large market for western purchasers. Impressed with this conviction, and determined to offer all facilities to travel as well as to trade, the Baltimore and Ohio Railroad has for several months past been busily engaged in building and stocking its road with first-class passenger cars. To these are to be added next month twelve Pullman palace cars, which will be put on the line as soon as the Parkersburg bridge is completed, four out of the seven river spans already being secured upon the piers. The short link of road connecting the Marietta and Cincinnati road with Cincinnati will not be finished until next summer. It is, however, but seven miles long, and by arrangements already existing with another road, there will be no interference with the operations of the through route.

Montana territory has 20,580 population, and also 18,000 Indians in tribes.

Mobile & Ohio Railroad.

Mr. L. J. FLEMING, the able Chief Engineer and Superintendent of the Mobile & Ohio Railroad in the 22d Annual Report of the Company, among other very valuable information gives the wear and tear of rails of two divisions upon his road, and makes the following comment:

In the thirteen previous annual reports I have made, a detailed statement of the wear and tear of each pattern and brand of rail has been given; but no opinion has been expressed as to the *quality* of the metal or the influence which *form* has had upon its durability. It is not generally known that the fish bar joint fastening was first used in this country, on this road in 1852; and 411 miles of the main track, and 14 miles of branches were originally laid with fish bars, and the remaining 61 miles of main track with rails weighing from 57 to 61 pounds per yard, with cast and wrought iron chair-joint fastenings.

The fish bar rails in the main track weigh 68 lbs per yard, and vary from four to four and three-quarter inches in height, with an uniform width of four inches base; and the chair rail from three and three-quarters to four inches in height and width. There were 289 miles of track originally laid with the fish bar pattern of rail four and three-quarter inches depth of section, and the fish bar fastening used on it is the heaviest and strongest in the country. A part of it has been in use for 17 and none less than 9 years. A part of the chair rail has been in use 19 years, and none of it less than 10 years. Careful observation for 14 years of the different forms of rail and joint fastenings on this road has resulted in the following conclusions:

1st. That, while the fish bar fastening was a great improvement on any and every form of chair, it requires the rail to be of thin and deep sections, which causes it to laminate more rapidly than the pear-headed pattern.

2d. That, as between the fish bar patterns of the same weight, but of different form and depth of sections, those approximating to the pear-headed shape have, without regard to makers been the most durable.

3d. That the 57 lb. rail, laid with the ordinary lip chair, has worn as well as the 68 lb. fish bar rail, four and three-quarter inches depth of section, with the best and strongest fish bar used in this country.

5th. That the deep, thin section is deficient in lateral strength, and its extreme vertical rigidity, when laminated, rapidly granulates axles and all iron parts of the rolling stock.

When first used, there was great difficulty in keeping the nuts on fish bar fastenings screwed up; but this has been partially overcome by "Star" and "Elastic" washers, and by the simple and more effective plan of starting the metal of the fish bar at the side of the nut, when properly screwed up. But with any of these plans the fish bar fails to meet the requirements of a good joint fastening, viz: to make the joint of equal strength with the solid rail.

As there is no material on, or in the vicinity of this road suitable for good ballast, the necessity for a good joint fastening is more important than on almost any other road in the country. No form of rail or drainage can compensate entirely for the want of good ballast; but with a good joint fastening and proper drainage, the track can be maintained in condition for a higher rate of speed than

the population or production will justify for many years to come. With a view, therefore, of deciding upon the best form of joint fastenings, a series of carefully conducted experiments were made to determine the comparative strength of other fastenings, and with the solid rail, and with the best form of fish bar. The result was the adoption of the "Reeves Suspension Joint," as approximating nearer the strength of solid rail than any other, and one mile of it was laid with a 57 lb. pear-headed rail more than a year ago. The fastenings have not been touched since laid; they are still tight, and the track is as smooth as the 68 lb. fish bar rail adjoining it.

The form of rail has, therefore, been changed to four inches depth and width of section, and the weight reduced to 63½ lbs. per yard.

And in speaking of the connection made with this city, via the Louisville Short Line, and the contracted policy of attempting to break bulk and stop passengers at Louisville, Mr. Fleming makes the following pertinent and sensible remarks:

The Louisville, Lexington & Cincinnati Railroad, although not a direct connection, has been completed, and forms a shorter line for travel and freight to and through Cincinnati. It was constructed of a five foot gauge, but the city of Louisville, in granting the privilege of connecting its track with the Louisville & Nashville road, has required the gauge to be changed to 4 feet 8½ inches, and made a condition that no car shall pass through the city of Louisville without transshipment.

Philadelphia, Baltimore, Washington city, Richmond, Petersburg, Augusta, and Macon, Ga., Montgomery, and Cincinnati, are examples of efforts to prevent the union of tracks, which for a time were successful; and the States of New Jersey and Ohio to make a break of gauge and consequent transshipment at State lines. The commerce of railroads has forced the connection of tracks, either around, through or under these cities, and the inventive genius of the country has devised cars which are run on all gauges, from the narrowest to the widest, and the traveler through New Jersey and Ohio does not know that in passing the State line he goes upon a road of different gauge. As in the past, so will it be in the future, if the cities or towns erect toll gates—either by requiring transshipment, levying taxes or placing any other obstructions to the free passage of the traffic—the commerce of railroads will force its way around, under, or through them. This subject is alluded to, because this Company has a large interest in Eastern freight, and the transportation of early fruits and vegetables for the North and West. With the most careful handling, this latter freight is materially damaged by transshipment; and the distance to which it can be sent, and the area of country supplied, depend upon the time of transportation.

The Registrar-General places the area of London at 77,907 acres, which exceeds the area of Philadelphia by less than 2,000 acres. Paris has only 7,802 acres, Vienna 3,728 acres, and Berlin 6,253 acres. Birmingham is in excess of the acreage of Paris, having 7,831 acres. Birmingham must be healthy, for its rate of mortality is 16 per 1,000—the lowest of all cities; the highest is Leeds—24 in 1,000.

Valuable Railway Connections.

We learn from the Burlington *Hawkeye* that the Toledo, Peoria and Warsaw, the Rockford, Rock Island and St. Louis, and the Burlington, Cedar Rapids and Minnesota Companies have entered into such arrangements that they are to be operated in close connection for both freight and passengers, thus making a direct line between Peoria and Cedar Rapids. The Burlington branch of T. P. & W. road is to be completed by the first of January next, when the full force of this contract can be carried into execution.

The Peoria *Transcript* says of this arrangement:

This new line will prove of vast benefit to our Burlington neighbors, as it will give them a second and competing route eastward. It will also be of great benefit to Peoria, inasmuch as it will serve to swell our east and west route over the T. P. & W. into one of the great trunk lines of the country. We not only get a new connection with the Mississippi, but we strike northwardly from Burlington over a vast country hitherto almost inaccessible to us. Few of our citizens have any idea of the amount of traffic which we have had with Northern Iowa in the past—especially in the matter of wheat. All last winter wheat was shipped here from Dubuque via the Illinois Central to El Paso and then by the T. P. & W. road to Peoria. The heavier share of all this will, on the completion of the proposed new route, seek our city naturally by way of Burlington.

NORTHERN PACIFIC RAILROAD.—Five hundred barrels Minnesota flour, which came from St. Paul to Duluth over the new railroad just completed by our Philadelphia capitalists. We are thus put one step nearer to the great Northwest. From St. Paul to Duluth is about one hundred and sixty miles by rail, from Duluth to Erie is about the same distance by lake as from Chicago to Erie, so that the farmers of Minnesota are practically two hundred to three hundred miles nearer to us by rail than before the route was opened.—*Press*.

RAILROADS IN RUSSIA.—Russia is the only country in the world which now approaches the United States in the extent of railroads being built. Unlike the United States, however, it is obliged to import most of its rails. The Cleveland and Tyne districts alone, in England, are said to have orders from Russia to the amount of £3,000,000 for railway materials of all kinds. The Northeastern district is producing railroad material at the rate of 1,700,000 tons a year, and increasing its furnaces, so great is the demand for railroads in construction on the continent.

A good varnish for iron is made as follows: Take oil of turpentine, and drop into it, drop by drop, strong commercial of vitriol; the acid will cause a dark syrupy precipitate in the oil of turpentine; keep adding drops of vitriol until the precipitate ceases taking place. then pour out the liquid and wash the syrup mass with water, and it is ready for use. Heat the iron to be varnished to a gentle heat, and apply the syrupy product, and allow it to dry; it will be found, on being dried, that this varnish has become incorporated with the surface of the iron, and therefore very permanent and durable.

NEW MOTIVE POWER.—It is proposed to run the street cars of Mobile by means of India rubber appliances upon a new and ingenious plan. Two bands of the rubber, two and a half inches in diameter, and fifty-six feet in length each, will be used. Each piece will be attached to a separate drum, and as the stretch of the rubber will be ten feet for one, five hundred and sixty feet will be run off the drum before it becomes necessary to use its fellow drum. In running off this five hundred and twenty feet, a distance of 14,175 feet, over two miles will be traversed by the cars; the other drum is then called into requisition, and while it is propelling the car the exhausted drum is wound up by the same leverage which the conductor uses to stop and control the car, and the only trouble the conductor has is to stop and throw the lever off the drum in motion, a simple operation, which can be reversed in a minute if it becomes necessary to stop the car.—*Mech. & Inventor*.

CYLINDERS IN NARROW-GAUGE LOCOMOTIVES.—An exchange describes a new arrangement which is spoken of as especially applicable to locomotives on narrow-gauge railways: "The steam cylinders are placed one above the other in a center line between the driving-wheels, the piston-rod from one being connected by the connecting-rod to the crank of the front driving axle, and that from the other to the crank of the hind axle. The cranks are placed at right angles. By applying the power to both cranks in a central line between the rails, the tendency of the engine to oscillate is removed; whereas in the ordinary mode of applying the power first on one side and then on the other, the strain is constantly in opposite directions, and the flanges of the driving-wheels are moved more or less towards the rails, thereby producing oscillation."

The Nautilus Life Belt is a recent English invention. The fastening of those last made has been improved in an important manner, so that there can neither be any escape of air nor any unhooking by the motion of the body in the act of swimming. The orifice admitting the air is closed by a metal disc, hollowed on the inside, which presses on a rubber washer, when the shank of the disc, which passes through the air-hole and carries an eye at the opposite end, is linked up close by the hook. In some belts, which are made with a view to their use as life-buoys, the air hole is very neatly and effectually closed by a screw, which brings home the disc and makes a most secure joint.

It appears from official statistics that of the total imports into the United States for the fiscal year ending June 30, 1870, \$415,847,213 worth were dutiable, and \$46,508,950 free of duty; \$268,481,274 worth were entered for consumption, and \$193,874,889 were entered for warehouse. Foreign vessels carried nearly 69 per cent. of the whole imports in 1869, and 67 per cent. in 1870. Of the total exports, 65 per cent. in 1869, and 62 per cent. in 1870, and of the whole, 67 per cent. in 1869, 64 per cent. in 1870.

The tunnel under the Bosphorus proposed by M. J. Hadden, one of the chief engineers of the Turkish government, would be a tube suspended at about 35 feet below the surface of the water, and anchored with chains to the bottom. A plan and section of the tunnel may be seen in the *Engineer*.

Columbia, South Carolina, has an ice factory where, at an expense of \$11,000, from 40,000 to 50,000 pounds of ice can be turned out per week. The process of manufacture is simple: The ammonia is heated in a boiler, and conveyed through a pipe to a cooling box, and thence to a tank, where the water intended to be frozen is kept in several tin boxes. The boxes are three feet long, seven inches wide and three inches deep.

The Red sea, according to soundings made by the Great Eastern while laying the Indian cable, exhibits in some sections a fall of 500 feet in a few miles, then a gradual rise of 700 feet, and then a descent of 150 feet. The greatest depth was 986 feet.

THE FIRM OF WM. J. YOUNG & CO.

Mathematical Instrument Makers, consisting of Wm. J. Young and Chas. S. Heller, was dissolved shortly before the death of Wm. J. Young. The undersigned, the late partner of said firm (who was with Mr. Young continuously for Fifteen Years, will continue in the same line of business, at No. 33 North Seventh street, Cor. of Filbert.

CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27

RAILROAD TIES WANTED.

OFFICE OF THE
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RAILROAD TIES, to be delivered during the ensuing Autumn and Winter, along the line of their road in West Virginia. Persons wishing to propose for furnishing the same may apply in person or by letter at this office.

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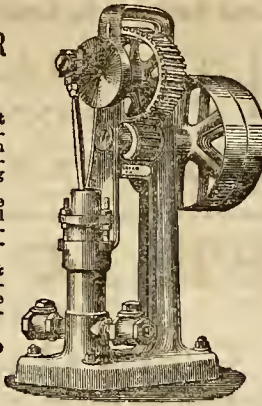
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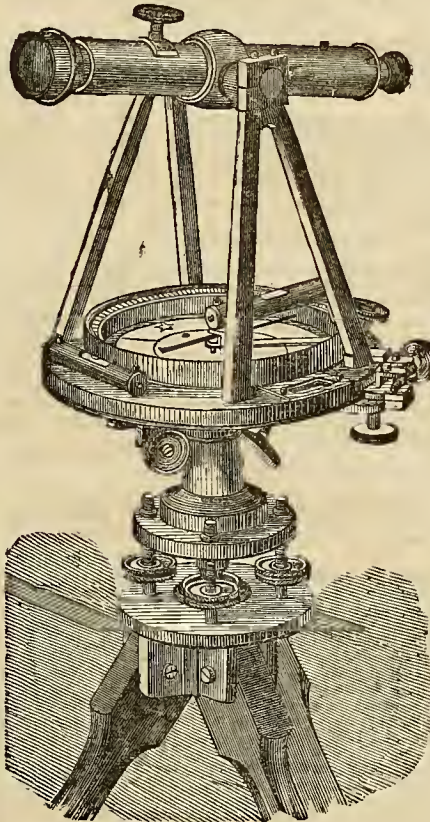
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JANUARY 1st, 1870.

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The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

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(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

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New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

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And all Rail and River Towns and Cities in the West,
North west and South-west.

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ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
*St. Louis and Springfield Express.....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	3.35 pm
*Lawrenceburg Accommodation.....	4.70 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

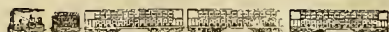
	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7:00 A. M.	6:30 P. M.
do do do do.....	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do do.....	6:30 P. M.	7:00 A. M.
Lima, Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do do.....	2:30 P. M.	5:40 P. M.
do do do do.....	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do do.....	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do do.....	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do do.....	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

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SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Lagrange, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.06 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Manch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckahoe &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:40, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent
H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, -- THURSDAY, OCTOBER 13, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
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Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'r's.

Railway Signals.

We copy the following from the Chicago *Railroad Gazette* of Oct 1st:

Among the important items of railroad improvements in these days of "special New York expresses," is that of signals, which show the engineer as he approaches a station at a high rate of speed that switches are right and that he is sure of going safely through. This by day is shown by various devices. At night lights can be used to signify the same thing, and our best roads either have in use or are adopting some device for this purpose. Several accidents within the past year have impressed upon the minds of those interested the necessity of this. This subject has been discussed, numerous experiments tried, and many kinds of lighted switches invented. It matters little which is used, but it is certain that our first-class roads can not afford to go without some one. Another item seems to have been overlooked. Within the last few years the telegraph has come into general use as an aid in the movement of trains, but as yet no perfect system of signals has been adopted by which those in charge of trains can know as they pass stations whether orders may be expected or not. They may see a signal to stop for orders—or they may not see anything. If one is seen they know they must stop. If not, they are uncertain about it. If this signal is in the hands of a man, he may not always be in the same place, and thus the engineer is not sure where to look. The man may neglect to show any signal at all. Many cases of this kind have occurred—one was noticed on page 604 of the *Railroad Gazette* of September 24. In that case the telegraph operator had been instructed to hold one train until another arrived from the opposite

direction, but falling asleep, it passed unnoticed by him, and a collision followed. Had some good signal been used, this could not possibly have occurred. And by a good signal is meant one that is *positive* in its information to the train. It must show that there are orders or that there are none, and leave nothing in doubt. An engineer is not satisfied when he does not see a signal of danger at a switch—he wants to see a signal of safety. So with the "telegraph order signal." We must have something that is a safety signal as well as one of danger. We are glad to know that one road running out of this city is moving in the right direction, and the result of their experiments has been the production of a signal which with Miller platforms and steel rails and palace sleeping cars, must become a fixture upon roads that have the safety and comfort of their patrons and employees in mind. Let us hope for an early development and adoption of this or some other equally good device.

And we clip this item from one of our exchanges, the name of which we have forgotten:

An electric railroad signal has been invented by Mr. Robinson of Pioneer, Pa., which consists of electric wires so arranged that about a mile and a half or two miles from a crossing the car wheel will press a wire against the track, completing the circuit, and setting a bell to ringing, which continues until the train has passed the crossing, when the circuit is broken and the bell ceases. Again, a mile or two from a station a wire is placed, which is pressed against the track by each wheel and springs up on the removal of the weight. Thus with each completion of the circuit a tap is rung on the bell at the station, and the direction, distance, rapidity and length of the approaching train is designated. When a switch or drawbridge is out of place the approaching train will sound an alarm at the station and throw up a signal to warn the engineer of his danger.

About a year since we discussed at some length in the *Record* the necessity for some more complete system of railway signals than any in use in this country; and at the same time we gave such a description as we could of the various systems of railway signaling used in Europe.

Our attention was directed to this subject at that time by the exhibition in this city at our Chamber of Commerce, of "Natcher's Telegraphic Railway Alarm," which operated so successfully and seemed capable of meeting every demand that can be required of such an invention.

For some time after this public display at the Cincinnati Chamber of Commerce, we had this machine in our office, and from time to time subjected it to the most thorough tests, and after finding that it fulfilled all that was claimed for it by the inventor, and believing it to be perfectly practical, we gave as full a description of it in our paper as we were capable of doing, and urged its adoption upon our principal lines of railway.

Our article attracted considerable attention, and it was copied in several of the scientific journals of the country, as well as in some of our largely circulated dailies, and we received several letters from leading railway men in

different parts of the Union making further inquiries about this invention, and expressing a desire for its success. All these we answered as well as we could, and urgently requested that the principle be applied to an operating road, and put to the most thorough test.

This interest gave rise to the organization of a company of gentlemen in this city, who proposed to manufacture and attach the Alarm to railways, and who at once made known the merits of the invention to the executive of every railway in the United States, and the terms upon which it could be had (which were very moderate), and, in fact, all the information concerning this valuable improvement that would be likely to secure its adoption upon such railways at least as are under the supervision of enterprising managers.

We learned from the president of the company that this effort called forth an extensive correspondence with railway men, who expressed the necessity for such an improvement, and their desire for a trial of this one, but not a single order for its application was received, and even the attempt to secure the right to place it upon some of our roads at the expense of the company as an advertising experiment was discouraged and rendered fruitless. After this, no further efforts were made. The time for the adoption of such an improvement had not come. Railway managers, however much they desired such a thing, were evidently unwilling to make the experiment where the least cost or risk was to be taken.

In the mean time we have paid some attention to the accidents that have occurred that would have been prevented by the use of this invention, and they run into numbers so high and into values so great as to be absolutely astounding. In nearly every instance, where the damages were measured by dollars, it amounts to many times more than the cost of applying this means of prevention. And if to this could be added the incidental and unmeasured cost peculiar to almost every railway accident, it would so shock the public mind, and even the sense of the most *economic* railway manager, as to seem positively criminal to delay the trial of any reasonable means that are offered to avoid such catastrophes. Even their daily occurrence, and the public familiarity with such events, would not shield from censure those who are guilty of this gross neglect, to call it by no harsher name.

The conscious want of something of this sort prompts the genius of the country to supply it, and every few weeks we find announcements such as we copy into this article. There are now patented in the United States upwards of one hundred plans of thorough railway signaling, doubtless many of these are valueless, but many of them are practicable, and the best of these ought to be put to the ordeal of demonstration. Sooner or later

railway managers will be compelled to recognize the value of such improvements, and railway companies, both as a protection to their investments, and to satisfy the public requirements, to adopt them. Any accident of unusual magnitude, or a series of them, as sometimes unaccountably occurs, and that might have been avoided by the means proposed, will quicken the work, and bring all parties in interest to their senses. It was only after such events in Europe that a more perfect system of railway signaling was considered and that resulted in the adoption of the semaphore and dial now in use there.

We have no direct interest whatever in any of the inventions for the purpose suggested, yet we have given this matter a great deal of consideration, and are convinced that the perfect plan must admit of the signals being given electrically, and that they must be by sound, rather than by various colored lights, or flags, or any other means that depends upon the distinguishing power of sight alone, and that, as far as possible, they should be, so to speak, automatic; we mean by that, made by the train or the locomotive, instead of relying upon the action of men, the best of whom are subject to infirmities that incapacitate them from attending these important duties. Aberrations of intellect, sickness, physical exhaustion, color blindness, and numerous other troubles human "flesh is heir to," are often causes of those dreadful accidents that startle the country, and for which coroners' juries find "no one to blame."

It was because we found Natcher's Telegraphic Alarm capable of meeting more of these requirements than any other plan that had come under our observation, that we gave it the indorsement of which we have spoken. And we still think it is in nearly every respect superior to anything else in existence for the performance of such services. It is simple, of easy and cheap adaptability, certain in its operation, and capable of a diversified working. It ought to be put to the test in this city, and the result announced to the country, and if it is what the inventor claims for it, and what we think it is, it will speak its own merits, and soon command respect.

A Grand Project.

We learn from a reliable source that a company of able northern men have taken control of the road from the harbor of Port Royal, and made arrangements to extend it to Kansas city by way of Memphis. This will take it through Opelika, Tusculumbia, and through Alabama to Memphis.

This is a grand scheme, not only in a local sense, but as a new line for the transit of western products to the magnificent harbor of Port Royal.

We hope the work will go on.

The Kansas Pacific Railway.

We give below a synopsis of the earnings and expenses of this important thoroughfare, and an exhibit of comparative distances from Denver and San Francisco to important interior points where connections can be made with the principal business centers of the country.

EARNINGS AND EXPENSES.

The comparative earnings and expenses for the first three months were:

	1869.	1870.
Earnings	\$353,209	\$617,551
Expenses	273,723	375,935
Increase gross earnings....		264,341
Increase expenses.....		102,213
Net earnings.....	79,486	241,615
Increase net earnings.....		162,128

The comparative earnings for the second three months, month by month, were:

	1869.	1870.
<i>April</i> —Earnings	\$217,914	\$314,283
Expenses	93,291	173,054
Net earnings.....	124,622	141,229
Increase gross earnings....		96,368
Increase expenses.....		79,762
Increase net earnings.....		16,606
<i>May</i> —Earnings	222,163	349,226
Expenses	107,571	198,527
Net earnings.....	114,592	150,799
Increase gross earnings....		127,063
Increase expenses.....		90,956
Increase net earnings.....		35,207
<i>June</i> —Earnings	188,417	363,256
Expenses	112,915	206,012
Net earnings.....	75,502	157,243
Increase gross earnings....		174,838
Increase expenses.....		93,097
Increase net earnings.....		81,741

The total of earnings and expenses for the first six months was:

	1869.	1870.
Earnings	\$981,705	\$1,644,317
Expenses	587,500	953,530
Increase earnings.....		662,612
Increase expenses.....		366,029
Net earnings.....	394,204	690,787
Increase net earnings.....		296,583

THROUGH AND LOCAL BUSINESS.

In his report for 1869, President Perry estimates the gross earnings for 1870 as approximating \$3,000,000, and those for 1871 at \$4,000,000. The earnings for 1870, it is seen, would amount to \$3,250,000, at the rate of the first six months, on the uncompleted road; while the last four months, three of which are always those of increased business, will be on the entire through line to Denver and Cheyenne—receiving not only the business of Colorado, but more or less of the through business from the Pacific coast coming over the Central and Union Pacific roads to Cheyenne. At the rate of the first six months, the net earnings for 1870 would amount to \$1,381,574 78. The gross earnings for 1869 were \$2,225,850 11; the operating expenses, \$1,386,180 02, making the net earnings \$839,670 09.

As a basis of computation it is necessary to say that the distance from Kansas city to Denver is 637 miles; from Cheyenne to Denver 106 miles, and from Cheyenne to Omaha, via U. P., 516 miles.

Denver to St. Louis, via K P & N Mo roads	909
Denver to St. Louis, D P, U P & K C, St J & C Bl, etc.....	1,095
Denver to Boston, via K P, N Mo and Vandalia route	2,110
Denver to New York, via K P, N Mo, Vandalia and Allentown	1,958
Denver to New York, via K P, N Mo and O & M roads	1,992
Denver to Philadelphia, K P, N Mo and Vandalia	1,882
Denver to Philadelphia, K P, N Mo and O & M	1,916
Denver to Washington, K P, N Mo, Vandalia and B & O roads	1,873
Denver to Louisville, K P, N Mo and Vandalia	1,257
Denver to Louisville, K P, N Mo, and O & M.....	1,229
Denver to Cincinnati, K P, N Mo and O & M	1,249
Denver to Chicago, K P, N Mo, and Ch & Alton	1,189
Denver to Chicago, K P, H & St Jo, and C, B & Q.....	1,126
Denver to Chicago, D P, U P, etc.....	1,114
San Francisco to New York, C P, U P, D P, N Mo, Vandalia, etc.....	3,461
San Francisco to New York, via Omaha, Chicago and Detroit.....	3,225
Denver to New York, D P, U P, Chicago, etc	1,993
Denver to Philadelphia, D P, U P, Chicago, etc	1,937
Denver to Boston, D P, U P, Chicago, etc	2,122
Denver to Baltimore, D P, U P, Chicago, etc	1,914

Grand Rapids & Indiana Railroad.

APPOINTMENT OF OFFICERS.

The following appointments have been made on this road, dating from October 1:

Chase Gorham, Sup't; H. D. Wallen, Ass't Sup't Southern Division; John L. Shaw, Ass't Sup't Northern Division; Wm. P. Shinn, Gen. Freight Agt.; F. R. Myers, Gen. Pass. and Ticket Agt.; F. A. Garham, Auditor.

This road is now open 200 miles north of Fort Wayne, and trains are running regularly to Paris, Michigan.

This is one of the projects that has passed through nearly every ordeal known to railway building in America, and more than once it has seemed to be dead, but the scheme was one of real merit, and could not be killed, however badly it might be scotched.

We are glad it is so far along as now to leave little or no doubt of its completion within a reasonable period to the Straits of Mackinaw.

And when the line is thus completed, and its business established, it will be found that all we have claimed for this great work in the RECORD, for the past ten years, will be fully verified.

We have the pleasure of knowing some of the parties who now have charge of the road, They are first class men and will add greatly to the importance of the work they have in charge.

The Southern Railroad.

In considering the question of "Ample railroad facilities from the Ohio river to the central South," the Southern Commercial Convention, held in this city last week, adopted the following preamble and resolutions as its sentiments:

WHEREAS, Railroads tend to increase production, consumption and the general development of the resources of the country through which they may pass, thereby augmenting the general prosperity and wealth of the whole country; and

WHEREAS, There are no direct railroads running from the Ohio river to the Central South through a large portion of the great States of Kentucky, Virginia, North Carolina, Georgia, Alabama and Tennessee, to the harbors of the Atlantic and Gulf coasts, including that great belt of country lying between the third and eighth meridian west longitude from Washington, abounding in agricultural and mineral wealth as yet almost entirely undeveloped; therefore, be it

Resolved, That this Convention recommend most earnestly to the favorable consideration of the Legislatures of the different States, and also to the counties and municipal corporation authorities through which they may pass and terminate, the following projected lines of railways, and respectfully ask that liberal legislation be granted and a generous support extended said lines by those whom they will directly as well as for the general benefit that will be derived by the country at large. Said roads which your committee especially recommend for the approval of this Convention are the following, to-wit:

1. Cincinnati Southern Railroad.
2. The Louisville & Chattanooga Grand Trunk Railroad.
3. The Cumberland & Ohio Railroad.

Resolved, That this Convention urges upon the General Assembly of the State of Kentucky the necessity of granting a charter to the Cincinnati Southern Railroad from Cincinnati to Chattanooga, or to such other point south as may be deemed advisable by the trustees or corporators, and that the line should be as direct as possible.

Railroad Bonds.

A late number of the New York *World*, in an able article upon the profit and security of American investments, speaks of first mortgage railroad bonds in the following flattering terms.

We fully concur in all that is therein expressed, and desire to simply add, that if these securities were sustained by our capitalists, and not made speculative and bought at such depressed rates as frequently to compel a poor construction of the roads mortgaged to secure them, they would never fail to yield their full promise, and be as substantial and certain as the best securities that are offered in the market.

The investment capital which took alarm and was withdrawn from the market on the first news of the war is beginning slowly to recover confidence, and is seeking for investments. The current of domestic investments

is again beginning to flow into first-class railway mortgages. The extraordinary business transacted in Central Pacific bonds during the week—greater on some days than in Government bonds, shows in what direction the tide of investment capital is beginning to flow. Some of the new railway bonds advertised for sale are also moving more freely. The experience of the past has shown that the first mortgage bonds on American railroad property will challenge comparison with any security anywhere for safety. The total amount of funded debt on the railroads of the Northern and Western States amounts to the vast sum of \$662,000,000. The bulk of this capital has been raised in the United States, and is still held for investment here by our citizens. Out of this large sum at the present time all the companies pay the interest on their first mortgage bonds, excepting one, viz: the Atlantic & Great Western Co. It will be difficult to find any other class of investment in the world to the extent of \$662,000,000, a sum equal to about one-third of our national debt, which can show so trifling a default in interest, with no loss at all on the principal.

Our vast railroad system has been created mainly by domestic capital. During the past year about 5,000 miles of railroads have been constructed. The lands through which they run have been increased in value from 300 to 2,000 per cent. since the opening of the roads; or, in other words, lands which were unsalable before the roads were built, at 80 cents to \$1 25 per acre, are now in demand at \$3 to \$20 and \$30 per acre.

A Canadian Pacific Railway.

The following article we find in the Chicago *Railway Review*, condensed from a letter upon the subject published in the New York *Times*.

It is an interesting subject to our people just now, as the Pacific Railroad question is uppermost, and this one may be said to have been prompted by our success in the construction of the Union Pacific, and of its extensive business and probable profits.

The project of constructing a continuous railway wholly through British territory, to connect the Atlantic and Pacific oceans, is about to prove a reality, for the Dominion Government have decided to take the matter in hand, and with the assistance of the Gov't of Ontario intend to build it with as little delay as possible. Although no actual surveys have been made, it is ascertained that the difficulty of running a line to Ft. Garry, and thence to the Pacific, is less formidable than represented. The cost of construction will be very great, not so much on account of the difficulties of the route as the fact that few facilities offer for building a road much of the way through a wilderness, with only intervening barren spots. The long stretch of prairie will, in some measure, compensate for the heavy work to be done before reaching it, but, nevertheless, the cost will be immense. The road will run too far north of the U. S. boundary for any assistance from that quarter, and as nearly everything used in the construction, and all that is required for the supply of those engaged in the work must be drawn from Ontario, the expenditure will necessarily be greater than if the route were through a settled country.

THE STARTING POINT.

Montreal and Ottawa have been mentioned, but it may be found desirable to have the connection with the Grand Trunk further west, particularly as Ontario is to bear a large portion of the cost. Montreal and the rest of the Dominion eastward would be sufficiently well served through connection with the Grand Trunk, however far westward the starting point might be. As the Grand Trunk and the Inter-colonial Railways will necessarily form links in the great chain of interoceanic communication, the Dominion to the east of Kingston should be satisfied with the starting point anywhere west of that place.

THE ROUTE.

Taking Montreal as the point of beginning, the line would pass north of Ottawa, and not touch Ontario until reaching the mouth of the Montreal river at the head of the great Ottawa valley. Supposing, however, it were to strike Pembroke on the Ottawa, a pretty direct route would be obtained to the head of Lake Superior, by taking the south side of Lake Nipigon, which is the highest of the lakes of the St. Lawrence range. It is 95 miles long, 65 wide, and 400 feet above Lake Superior. Beyond Lake Nipigon, and nearer Ft. William, the greatest difficulties will be encountered. In some places the elevation of the country is 1,000 feet above Lake Superior. Parties interested have started with the design of finding a more accessible route. From Ft. William, which will be left some miles on the south, the route to Ft. Garry will be comparatively easy, only some 30 miles of hilly country intervening. There is no reason to doubt the practicability of running the line through the interior by the valley of the North Saskatchewan, the river Athabasco, and the Yellow Head or Leather pass, to the Upper Fraser river, and descending it to its tributary, the Quesnelle river, and from it across Bute inlet on the Pacific. A passage through the Rocky mountains may be had at Leather pass without much difficulty. The advantageous nature of the country is such that in 1862 a party of 150 emigrants made the passage with ease. They left Ft. Garry in June, and got through in good time. So gentle was the ascent that they did not know they had passed the mountains till they found the waters flowing westward. It is evident, therefore, that the greatest obstacles are to be met with at the point spoken of near the head of Lake Superior, and immediately beyond Lake Nipigon. Difficulties less formidable occur before reaching the last named lake, and a short distance of the route west of Ft. William likewise presents obstacles which, however, will be easily overcome. To find an easy route all the way would be out of the question, but it is safe to assert that were the facilities of construction as good as they usually are through settled districts, the road would not be more difficult to make than the Inter-colonial.

ADVANTAGES OF THE LINE.

It is claimed to be much shorter than the route through the United States. The distance between New York and the Pacific is put down at 3,284 miles, while from Montreal, by the Canadian route, it would be 2,846, or 438 miles less. Adding from Montreal, via the Inter-colonial, to Halifax, 843 miles, and 2,467 to Liverpool, this route from England would be 200 miles shorter than by way of New York to the Pacific. This is held to be a decided advantage, and as freight could leave the railway either at Montreal or Quebec, the cost of transportation might be greatly

lessened. As a through route the difference in favor of the Canadian one might be of importance in shortening the trip between Liverpool and the Pacific coast. Of course it is calculated that something more than the mere traffic and travel between the different provinces of the Dominion would be secured, for a continuous line from ocean to ocean would unquestionably draw a large share of the carrying trade between Eastern Asia and Europe; in fact it would be counted a rival to the existing Pacific Railway. The Canadian government having in view the annexation of British Columbia to the Dominion (that of the North-west being accomplished), appear to think a railway to the Pacific a necessity, particularly as the Inter-colonial will require a more extensive feeder than the Grand Trunk.

ITS COST.

It may well be doubted if the resources of the country are adequate to the demand when the road comes to be built. The expenditure of some \$80,000,000 or \$100,000,000, at present, would be too much to bear, yet the attempt is to be made. The enlargement of the St. Lawrence canals would have been more popular, and it is evident that a mistake is being made in committing the country to a Pacific Railway when the demand for the improvement of the present channels of trade is so loudly demanded. There has, beside, been so much corruption in connection with railways constructed or aided by the government that the propriety of their undertaking such a vast enterprise may well excite discussion and create distrust.

PUBLIC LANDS AND RAILROADS.—The Commercial Convention, after a thorough discussion of this much vexed question, adopted the following resolves:

Resolved, That it should be the settled policy of the United States to regard the public lands not as capital or a source of revenue, but as a means of increasing the population and enlarging the wealth of the country; and to this end the Homestead law should be sustained, and in regions where the settlement of the country is necessary to give value to the lands and promote the interests of the people, such appropriations of alternate sections as may be necessary to secure these objects must be considered beneficent and wise. But the public interest imperatively demands that such lands, whether reserved by the Government or appropriated to aid public improvements, should be held for the benefit of actual settlers at an average price not exceeding \$2 50 an acre; and every appropriation of public lands for these purposes should be accompanied by such limitations, restrictions and conditions as will compel corporations or other grantees, under penalty of forfeiture, to seek profit by promoting the settlement of the country, instead of speculating in the lands intrusted to them; secure the prompt construction of the public works in aid of which they are appropriated, and protect to the fullest extent the interests of the Government and the rights of actual settlers.

Resolved, That a committee of three be appointed by the Chair to memorialize Congress upon this subject, setting forth the views entertained by this Convention.

What Southern and South-western Virginia Is Doing for a Railway Connection Between Norfolk and the Ohio Cities—Cincinnati's Interest in That Line of Connection.

BURNET HOUSE,
CINCINNATI, October 6, 1870. }

I find the people of this beautiful, wealthy and prosperous city taking a lively interest in railroad connections southward, but I do not find them possessing a thorough acquaintance with railroad enterprises in one important portion of the Southern country.

I allude to the fine grain-growing, grazing and mineral region, composed of South-east Kentucky, East Tennessee, South-west Virginia, and North-west North Carolina. This region is the Switzerland of our cis-Mississippi portion of the continent. But, though more broken than the rest, its mountains are covered with forest or blue grass, to their tops, and it presents as large a proportion of cultivable land as almost any other country of equal area. It has at one time been proposed to make of this fine region a new State, to be called Frankland.

I am sure that this country would purchase the larger portion of its manufactured articles in Cincinnati, if only it possessed facilities of access to your city. I have been struck with the excellent quality of the articles manufactured here, as compared with the quality of those which the people of my country purchase in Eastern markets. The styles, for instance, of carriages, wagons and other wheel vehicles are much more tasteful; and the workmanship strikes me as remarkably perfect and honest. The mill machinery which I see here, and all kinds of agricultural implements, are not only most excellent in workmanship and quality, but are very much cheaper than such as I have seen in the habit of pricing in the East. I think I do not exaggerate when I say that, all things considered, the prices of such articles as have been named are twenty per cent. cheaper here than in the East.

A strong desire prevails among the people of my country to trade with the great cities on the Ohio. We are nearer to you than we are to Baltimore and Philadelphia. Abingdon, where I reside, is east of the center of this region; and Abingdon is four hundred miles by rail from Baltimore, and only three hundred miles by way of Cumberland Gap from Cincinnati. By the way of Pound Gap, I suppose the railroad distance between Abingdon and Cincinnati would be less than two hundred and fifty miles.

It certainly is an important desideratum with the public of your city, *how to get into railway communication* with that fine country. We hear much of "air line railroads," through Virginia, from St. Louis and other western cities, to Norfolk. Practically, there can be no such thing as an air-line, that is to say, a straight live railroad through a mountain country. To seriously project such roads, is to set at defiance all considerations of economy, to dispense with engineering skill, to run a foolish tilt with Nature herself. The wiser plan is, by diligent engineering search, to find the troughs which benignant Nature will be found to have laid down in the topography of almost every country, and to avail ourselves of her kindly provision in aid of our enterprises.

I shall speak of only one such channel, and of the use which Virginia is making of that, in seeking an outlet to the cities of the Ohio, meaning, of course, no disparagement

to others, by singling it out from the rest. I allude to the great line of completed railway from Norfolk, through Petersburg, Lynchburg, Bristol, Cumberland Gap, and Kentucky, to Louisville. The Virginia portion of this railway line is completed and in operation four hundred miles, from Norfolk to Bristol. It has been consolidated by recent legislation into one railway, owned and operated by one company, whose franchise covers the whole distance to Cumberland Gap. The control and credit imparted by this consolidation will enable this company to prolong its road to Cumberland Gap, some eighty-five miles west from Bristol, or four hundred and ninety miles from Norfolk. Thirty miles of this projection are already graded. The Virginia portion of this great line may therefore be regarded as virtually *un fait accompli*, and no longer a mere theoretical project.

The Kentucky portion of the line is even nearer to completion. You are aware that the Louisville and Nashville Railroad Company have extended a branch of their road through Lebanon far into South-eastern Kentucky, to and beyond the town of London, with the design to continue it in two directions, one fork looking to Knoxville and to Charleston, South Carolina, and the other looking for a connection through Cumberland Gap, to Norfolk, and also to Wilmington, by means of the North Carolina road, which is coming up to Bristol. The Kentuckians promise to be at Cumberland Gap with their road before we can get there with our Virginia road, and then there will be a continuous line of railway, on the five-foot gauge, from Norfolk to Louisville, seven hundred miles. In order to the completion of this most important line, there are but about one hundred and forty miles of road yet to be built, and that comparatively small link is in charge of two powerful railway companies, intensely interested in its prompt construction, and competent to its speedy completion. The Virginia portion of the line is under the management of President William Mahone, whose name, wherever known, is synonymous with indomitable energy and assured success in all his undertakings.

In adopting the route of Cumberland Gap, the projectors of this great line of railway did no violence to Nature, but accepted the line which she herself had seemed to provide. It is on the trail which Daniel Boone himself blazed through the wilderness in his progress from the settlements of the Yadkin to the blue-grass region of Kentucky. It is the path which the Floyds, the Shelys and that long train of emigrants pursued, who went from Virginia and the Carolinas into the Valley of the Ohio. It is the line on which Nature has placed her easiest grades and most facile passes.

It is impossible that Cincinnati should look with indifference upon this line of actual and not theoretical railroad, which is already virtually accomplished, and has passed out of the category of ideal projects. It will be her own fault if the Western section of it be controlled in the exclusive interest of Louisville. By means of a railroad owned by her own citizens she is already within a few miles of connecting with our line near Danville, Kentucky, and her large capital and advanced and varied manufactures can not fail to attract a custom from my section of country such as may well excite in her citizens a lively interest in our work.

I am, sirs, very respectfully,
Your obedient servant,
ROBERT W. HUGHES.

The Southern Railway.

LARGE AND ENTHUSIASTIC MEETING OF KENTUCKIANS AT LEXINGTON.

We condense the following report of this expression of the people of Kentucky from the *Gazette's* correspondence.

The meeting was organized by the appointment of Hon. George R. McKee, of Garrard, Chairman, and a Vice President from each of the counties represented. A committee of one from each of the counties represented was appointed to draft resolutions expressive of the sense of the meeting.

The committee was composed of the following gentlemen: Campbell, George B. Hodge; Keaton, L. E. Baker; Boyle, Joseph Hughes; Pendleton, Henry Bullock; Grant, J. J. Hume; Harrison, Thomas McGibbon; Owen, J. D. Scirven; Scott, Jas. E. Cantrell; Bourbon, F. L. McChesney; Henry, L. Curtland; Bath, C. M. Helman; Montgomery, R. C. Galewood; Powell, Richard Hardin; Madison, E. W. Turner; Jessamine, S. Miner; Woodford, David Thornton; Pulaski, Wm. Fox; Wayne, Joseph S. Seresman; Mercer, Uriah McGuffin; Boyle, M. J. Deerfam; Fleming, John B. Donnell; Clarke, Ben. G. Groom; Lincoln, R. J. Breckinridge; Garrard, Jas. H. Bruce; Boone, G. W. Terry. During the absence of the committee, the time was occupied by Col. James, of Chatanooga, and Mr. Bevier of Russellville, in speaking on the question before the convention.

The committee submitted the following report, which was unanimously adopted:

THE RESOLUTIONS.

The counties of Boyle, Bath, Bourbon, Fayette, Clark, Fleming, Grant, Garrard, Jessamine, Kenton, Mercer, Madison, Pulaski, Powell, Scott, Wayne, Woodford, Boone, Owen, Lincoln, Greerup, Harrison and Campbell, and the cities of Covington, Newport and Lexington, assembled in convention to determine what the interest and duty of Kentucky require as to the construction of a Southern railway, connecting the city of Cincinnati and the railways terminating with the city of Chattanooga and the railways centering there, and thus connecting the great Northern and Southern railway systems by a trunk line through the heart of Kentucky, recognize the vast importance to the country, of the State of Kentucky, and the particular section of the State through which said road may run, of the early completion of said railway; and that the only hope of obtaining such a road is the acceptance of the offer made by the city of Cincinnati. No language can overstate the importance of such a road to Kentucky. It would open to immigration and development a country possessing exhaustless, but now unavailable mineral wealth, forests of the finest timber, and water power of the greatest value. It would bring a market to a country of surpassing fertility, abounding in every variety of grain and every species of stock. It would transform pauper counties into counties of wealth. Its completion would necessitate the construction of a railway from the Big Sandy to Western Kentucky, thereby rendering certain the construction of the road from Norfolk or Baltimore to the great West. To be thus enriched, Kentucky is only asked to allow this road to be constructed through her territory, and the entire State is interested in granting the request. The Legislature of Kentucky represents the State, and the interests of the State demand the construction of this road, therefore it is

Resolved, That the Legislature of Kentucky be and is hereby requested to enact such legislation as may be necessary to the speedy construction of this great enterprise, and that a committee, to bring this matter properly before the convention, be appointed, and each county is requested to appoint a standing Committee on Railroads favorable to this enterprise.

2. That the thanks of this convention are hereby tendered to those members of the Legislature who voted for the charter of the Southern road at the late session thereof, and especially to those members from the western part of the State who recognized that this was not a sectional but a State question, and we express our sanguine expectation that their course will be approved, not only by us and their constituents, but by many of their colleagues who then opposed them, and by the State at large.

3. This committee expresses no choice as to routes, recognizing that the great object is to get the road, and that its location is of secondary importance, and that its completion will render practicable the construction of important branch roads.

4. That it is the opinion of this convention that this project would gain strength by discussions before the people, and therefore the following gentlemen are appointed to make such discussions: John G. Carlisle, Captain James E. Cantrell, C. B. Simrall, George R. McKee, Ed. Turner, James Chrisman, Edward Marshall, Hon. M. Bevier and Captain J. Cartwell.

(Signed) HENRY STANBURY.

JAMES E. CANTRELL, Secretary.

The convention met in the evening and was addressed by David H. Honsbel and J. R. Richardson.

The following committee was appointed to memorialize the Legislature upon the subject of Southern Railroad: Campbell, George B. Hodge; Keaton, George G. Perkins; Pendleton, Joseph Perrin; Boone, Fielding Dickey; Harrison, Thomas J. Megibben; Grant, W. L. Simmons; Owen, Major S. Clarke; Scott, Marcellus Polk; Bourbon, J. G. Craddock; Fleming, W. H. Hendrick; Bath, G. L. Coleman; Montgomery, Thomas Turner; Powell, M. Todd; Clark, John Guff; Madison, Col. Estelle; Fayette, W. C. P. Breckinridge; Woodford, E. C. Marshall; Franklin, S. J. F. Trabue; Jessamine, J. S. Shanklin; Garrard, George Dohyans; Lincoln, R. J. Breckinridge; Wayne, E. B. Jones; Boyle, Joseph L. Allen; Mercer, Gov. Bereah; Pulaski, Robert Gibson.

The Lake Superior iron mines are not behind the copper mines of that region in value and importance. The Cleveland iron mine there covers 1,800 acres. The total products of the mine, from 1851 to 1868 inclusive, were 485,215 tons. In 1851 the shipments were 3,000 tons, and in 1868 they footed up 102,213 tons. The Marquette mine has produced, in eleven years, 634,877 tons. The New York mine has turned out in four years, 142,942 tons. The Jackson mine commenced to ship in 1856, and its total product for twenty years was 665,131 tons. The shipments of iron ore altogether in 1868 were 500,000 tons; in 1869, 709,387 net tons. The total product of all the mines, fourteen in number, during the whole time they have been worked, is set down at 2,944,677 tons, and the outer crust of the iron hills has as yet only been punctured here and there.

Through the Virginia Valley.

For some time past public attention has been occupied by the strife to build two parallel railroads through the Shenandoah Valley; the one in the interest of the Pennsylvania railroad, and the other in the interest of the Baltimore and Ohio line. This valley is a broad and level stretch of country, hedged in by the two great mountain barriers, and forming a practical continuation of the Cumberland Valley. The long continued struggles of contending armies during the civil war, showed it to be the natural highway between the Potomac and south-west. The line in the interest of the Pennsylvania railroad bears the name of the Shenandoah Valley Railroad, and will connect with an extension of the Cumberland Valley Railroad, at the north, while at the south it will connect with the Virginia, and Tennessee Railroad, and thus form an entire through route from Philadelphia to Memphis.

The route of the new road is two hundred and thirty-three miles in length, all of which has been surveyed and put under contract to be completed within two years. It will be a low grade road, the minimum being thirty-five feet to the mile, and the maximum fifty-three, following the natural line of water courses. It reaches the Virginia and Tennessee Railroad at Big Lick station. This line will cross the tracks of the Baltimore and Ohio, Winchester and Potomac, Orange, Alexandria and Manassas, and Chesapeake and Ohio railroads. As soon as this road shall have been completed, the Cumberland Valley railroad will assume its proper place as one link in one of the greatest through routes on the continent. But we find a statement in print that ultimately it is designed to construct a new air line road from Berlin on the Potomac, by the way of Frederick and Westminster, crossing the Susquehanna at Castlefen or Peach Bottom, and thence to Christiana, where it will strike the Pennsylvania railroad.

At the meetings held in the Shenandoah valley, the speakers representing the Pennsylvania railroad stated that no subscriptions would be asked, that the Philadelphia company would build the road with its own means, and that all that was asked was liberal treatment in the matter of the right of way. The other line, in the interest of the Baltimore and Ohio railroad is partly built to Harrisburg, and General Robert E. Lee has been elected President, to appeal to rebel sympathies. But the company is asking local subscriptions and county bonds, and all the other well known means of loading a people down with debt to secure the building of a railroad.

This competition has the effect of stimulating both companies to great exertions to secure the completion of their lines, and we find the Shenandoah Valley Railroad advertising for two thousand laborers to begin the work. Some of the local subscriptions asked for by General Lee's company have failed, as in the case of Augusta county. It is worth hearing in mind that this valley connection has always lain open to the Baltimore and Ohio Railroad, without any effort at competition on the part of the Pennsylvania Railroad, but was totally neglected until our company went at it. Even now, Mr. Garrett thinks the value of the connection over-estimated. But the real value of it will lie in the amount of exertion used to develop the country along the route, and to obtain the transportation of the cotton

and grain crops from the Virginia and Tennessee railroad.

From the length of the new line it will be seen that merely in itself it will be a very important work, and it is intended that its connections with the roads crossing it shall be subservient as feeders. The charter, however, also gives the company power to build a number of branches, one of which is the Piedmont and Potomac Railroad, from Front Royal to Washington, D. C., a distance of fifty-five miles, which would give the valley a short line to the national capital, as well as to the great cities of the northern seaboard.

The road is under contract, and will all be built and in operation within two years, and then Philadelphia will open a direct trade with the whole Piedmont region of Virginia, and also stretch out her iron arms to East Tennessee, Northern Georgia, and the whole region westward to the Mississippi and southward to the Gulf or Mexico. What has been done already for the line through Cincinnati and Louisville to Memphis will be done for the line through the Shenandoah valley.—*N. Amer.*

TENNESSEE ROADS TO BE SOLD.—The Tennessee State authorities give notice that on the third of November the State's interest in the defaulting railroads named will be sold at public auction at Nashville. The following is the indebtedness of each of the roads to the State:

Edgefield & Kentucky.....	\$1,394,053
Cincinnati, Cumberland Gap & Charleston.....	1,530,787
Knoxville & Kentucky.....	2,000,788
McMinnville & Manchester.....	1,014,955
Memphis, Clarksville & Louisville.....	2,283,611
Nashville & North-western.....	4,215,466
Rogersville & Jeffersonville.....	493,928
Winchester & Alabama.....	1,661,633
Knoxville & Charleston.....	757,600
Evansville, Henderson & Nashville.....	218,000
E. Tennessee & Western North Carolina.....	412,000
South-western.....	300,000
Total.....	\$16,277,825

The recent advance noticed in the prices of the bonds of Tennessee is attributed to purchases of parties who purpose bidding for the railway franchises in the above named roads, which will be offered for sale on the day named, and for any amount of purchase State bonds and interest will be accepted at par.

There is no doubt of the petrified remains of a primeval forest having been found in Colorado. The place is about 53 miles from Denver, and the trees are found principally on the banks of a "dry sand creek." The trees are from 40 to 80 feet high. A mountain torrent, in tearing out this gulch, has exposed portions of these trees. One tree, that has rolled down into the bed of the creek, and lies there exposed, is about sixty feet in length and six in diameter. It is solid stone, principally agate, with some opal.

A Moscow journal states that the railway bridge lately erected over the Dnieper, near Kiev, is one of the greatest works of the kind in the world, and the longest in Europe. It consists of twelve arches, and is 3,503 feet in length. Captain von Struve, who built it, has been promoted to the rank of colonel by the Emperor Alexander, on the recommendation of the Minister of Public Works.

AN ELECTRICAL CAR BRAKE.—The following described electrical car brake has been recently tried successfully on the Providence (R. I.) and Worcester railroad:

Above and nearly over one of the axles of the car, is hung a shaft parallel to it, which is a revolving wheel eighteen inches in diameter, carried round when the car is moving by the friction of its surface upon the car axle. Upon one side of this surface is grooved out near the edge, leaving a perfectly even surface. Into this is fitted another wheel, (being somewhat smaller,) which has a perfectly even surface, and touches the other wheel's surface or disk within an eighth of an inch or less. This wheel, by means of coils of wire attached to it, becomes an electric machine when brought into an electric circuit, and by its attractive power adheres to the surface of the revolving wheel, which at once carries round the shaft by friction, and winds up the brake chains attached to it. To complete the circuit then, the wires are extended up through the floor of the car to the battery, which is nicely enclosed under a seat, and from this extend the wires to a plate overhead, at one end of the car inside, when the circuit is opened and closed by means of the bell cord.

Each car has this apparatus, and as they are all connected by the bell cord all can be operated at once. There is an arrangement also upon the connection plate, by which, should a coupling break, or from any other cause the train should become separated, the circuit would be closed and the brakes be operated so as to stop the whole train. The present system of braking can remain the same on the car, and operated just the same with the electro apparatus.

The engineer or fireman, who are supposed to be the first to apprehend danger to a train, can instantly operate all the brakes at once, and can do it always in making stops at stations. Should it by accident fail upon one car, that will not affect the working upon the others. If a car is taken into the train which has not this brake, it will not affect the operation of the others.

—AN INGENIOUS RAILWAY LAMP, as we learn from the New York journals, has been invented in France. It is so constructed that passengers can use it as an alarm signal in the different compartments of the train. It has three signals, one consisting of a brilliant glare of light, and will come in use when danger approaches in a dark night; another is a small flag, which also indicates danger; and the third is a ringing apparatus of great power, extending the length of the train to the guard room, and indicating the exact compartment whence the alarm proceeds. In all cases the alarm signal is given by touching a spring-knob connecting with the lamp and easy of access.

—At a meeting held on the 28th ult., at Jasper, Pickens County, Georgia, to aid the construction of the Marietta and North Georgia Railroad, the following was passed:

"Resolved, That a Committee of one be appointed by the Chairman of this meeting to visit if possible the city of Cincinnati in the interest of said railroad, and that said Committee of one be requested to co operate with any other delegation that may be appointed from other counties through which the railroad may be constructed, and we recommend that the Chairman appoint Hon S. A. Darnell as said Committee.

The cotton crop for 1869-70 is now ascertained to be 3,203,828 bales—an increase of 845,459 bales over the previous year. At \$100 per bale, its total value was \$320,000,000. Nearly the whole of the increase has been absorbed by the increased consumption of foreign countries, that of this country remaining nearly stationary.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27

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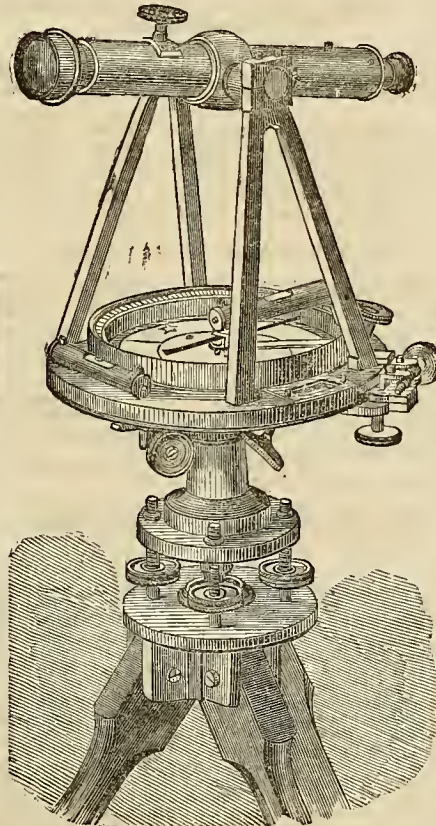
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Broad Gauge, arranged for both Day and Night Travel,

are attached to this train at Cincinnati and run through to

New York, forming the **Only Line** running through

860 Miles without Change.

Boston and New England Passengers,

with their Baggage, are transferred **FREE**

OF CHARGE in New York.

☞ The Erie Railway Company has opened a new

Ferry from their Jersey City Depo. to the foot of Twenty-

third Street, New York, thus enabling passengers to reach

he upper portion of the city without the expense and an-

noyance of a street car or omnibus transfer.

☞ The scenery along the entire route of the Erie

Railway is of the most picturesque and beautiful character.

Admirers of Nature's beauties, in a daylight journey over

this Line, will find in its ever changing landscapes sub-

jects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cin-

cinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet

House, and foot of Broadway, (Spencer House Block),

and at all principal Ticket Offices in the South and

South-west.

W. B. SHATTUC, Gen'l Pass'r Ag't.

W. M. R. BARR, Gen'l Pass'r Ag't.

Best Route to St. Louis and Chicago

INDIANAPOLIS,

CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,

North west and South-west.

☞ The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail	7.30 am	12.40 am
St. Louis and Springfield Express	2.40 pm	7.35 am
St. Louis and Springfield Express	10.20 pm	3.42 pm
Lawrenceburg Accommodation	10.10 am	2.35 pm
Lawrenceburg Accommodation	4.0 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Sat-

urdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail	7.00 am	10.15 am
Chicago Express	6.50 pm	9.30 pm
Harrison Accommodation	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Port Wayne & Chicago	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Sandusky, Cleveland & Buffalo	7:15 A. M.	5:40 P. M.
Springfield Accommodation	2:20 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:30 P. M.
Hamilton, Eaton & Richmond	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	10:20 A. M.
Hamilton Accommodation	9:30 A. M.	8:05 A. M.
do do do	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

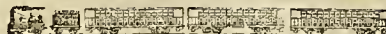
For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots, East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburgh without Change.

The PITTSBURG, PORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburgh, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati,

W. P. SHINN, General Freight Agent,

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

☞ No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

☞ The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckhannock &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch

Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:2, 7:40, 8:0, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKEN, Superintendent

H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, -- THURSDAY, OCTOBER 20, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
" column, single insertion.....	7 00
" " per month.....	14 00
" " six months.....	55 00
" " per annum.....	110 00
" page, single insertion.....	25 00
" " per month.....	40 00
" " six months.....	135 00
" " per annum.....	210 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'r's.

The Washington & Ohio Railroad.

A writer in a late number of the *Commercial* of this city, presents the claims of this road to the people of Cincinnati, and thinks it ought to receive a share of the ten millions of dollars they have voted for a railroad to the South.

The article grows out of a resolution passed at the Southern Commercial Convention recently held in our city, that submitted the question of railway connection with Virginia and the West to a committee of five, who are to report to the next Convention, to be holden at Baltimore.

The importance and value of the Washington & Ohio scheme can not be called in question. It is doubtless all that this advocate claims for it, and ought, among others, to command the aid of our city, or its sympathy and interest at least, and probably in the course of time, when we are aroused from the lethargy that now holds us back like hooks of steel, and the spirit of public enterprise animates us again, this grand project will come in for its share of both sympathy and material aid. After we are again in the habit of constructing such improvements, as we are quite likely to become, many things that are now looked upon as difficult, if not impossible, will be accomplished with a rapidity and ease that will astonish us. Communities, like individuals, find that the more they do the more they are capable of doing, and that lassitude breeds timidity, timidity distrust, and distrust incapacity.

But we think the *Commercial's* correspondent falls into two capital errors: First, that

it is to the interest of Cincinnati to consider at present any other connection with Virginia than that offered by the Chesapeake & Ohio road.

The line of this work passes through a most productive portion of the Virginias, that will yield an enormous and diversified traffic, and that is unsupplied by any means of transit to shipping or consuming points. The cities of Richmond and Norfolk will be easily found by this line, and thus two commodious harbors reached and by the extension of the Peninsula Railroad to Newport News at the mouth of the James, a third great haven will be secured for the vast trade of the developed West that may seek transatlantic markets.

Besides, this road will have such easy grades, and such advantages in directness and curvature, as will be unequaled by any other of similar length in the whole country, and superior to the Washington & Ohio, and as will capacitate it to do the enormous business with which it will be taxed in the most rapid and economical manner.

But, without claiming any advantages for this route over that of the Washington & Ohio, as we consider them both necessary and both nearly equal in value, the facts that the Chesapeake & Ohio is in such a state of forwardness, and that the work is now going on at such a rate, that its completion is certain within the next fifteen months, and long before the other can possibly be done, warrants us in looking to this as our first connection by rail with Virginia and tide water upon her coast, and to refuse to scatter our forces by dividing them with the Washington & Ohio or any other line in that direction. We have enough to do before even this road will be extended to our city, and if we meet with no better success than we have in three or four efforts already made to build a road from this city to the western terminus of the Chesapeake & Ohio line, we never will bring it here. When it was known that this great project was in the hands of a few strong men, and that it would certainly be made, and that, too, as quickly as possible, a little fluttering was visible here in railroad and commercial circles, that resulted in the organization of one company to construct a road upon the north bank of the Ohio river to Portsmouth, and another to construct what is known as the inland line to Ironton, and the old Hillsboro scheme was galvanized into life to be extended to Point Pleasant, with arms to Ironton and Portsmouth. And upon the south bank of the Ohio a project was placed on foot to construct a road from Newport to Maysville and the mouth of the Big Sandy. All these schemes were to reach the Ohio terminus of the Chesapeake & Ohio road, and yet, although the Chesapeake & Ohio work has advanced with unusual rapidity, every one of these extensions by which Cincinnati was to be connected with this new outlet to the sea, has failed—except, perhaps, the Hillsboro

route, and if this is alive it is not because Cincinnati has aided it, but because it proposes to supply Columbus, Toledo and the lake ports with a thoroughfare to this Virginia scheme. The Kentucky work failed when Campbell county refused to support it. The interior line could not obtain funds to complete the preliminary surveys, and stopped in the hills of Brown county; and the river route may be said to have died with the spasmodic kick that brought it into existence. And up to this very hour we are doing nothing whatever to reach this great Virginia road, that is progressing with such creditable rapidity.

If we can not make the lines proposed in our own State, it is not very likely we can do much toward the more extensive and costly work of the Washington & Ohio; and if we do anything, it is to our mind clearly fitting that we reach the Chesapeake & Ohio road first.

The second error we find in the *Commercial's* correspondence is, the proposed appropriation of the city's ten million dollar railroad fund, or any part thereof, to any other scheme than that of a Southern railway.

In the first place, the law under and by virtue of which this appropriation is made, requires the City Council to declare by resolution the name of the railway this fund shall be applied to, the termini of such road, one of which shall be such city, and that the question of such an appropriation to the railway so named and defined shall be submitted to the electors of the city proposing such an improvement.

And, in the next place, the Council of the city of Cincinnati, operating under this law, declared that the interests of the city demanded the construction of a railway to a central point in the South, and that it should be as nearly as possible an air line from this city to a point where the greatest number of trunk lines of railway concentrate and the greatest facilities are offered for communicating with the different cities and markets of the Southern States and they selected the city of Chattanooga as the southern terminus of this scheme, and named the work "The Cincinnati Southern Railway." And under further proceedings in this matter a special election was had in this city to decide "for or against providing a line of railway between Cincinnati, Ohio, and the city of Chattanooga, State of Tennessee." Such an election was had, and 15,435 votes were recorded in favor of providing this line of railway, and 1,500 against such provision. Afterward, such other proceedings were had in this matter as are required under the law, and that resulted in the appointment of R. M. Bishop, E. A. Ferguson, Miles Greenwood, Philip Heidelberg, and William Hooper as trustees, and the organization of the board by the election of Miles Greenwood as president.

It is for this railway, and none other, that the *ten millions* of dollars may be used, if these trustees should deem it necessary to carry out the work consigned to them, the law authorizing them "to borrow as a fund for *that purpose* not to exceed ten millions of dollars, and to issue bonds therefor in the name of the city," &c.

This, we think, settles this whole matter, so far as the appropriation of any part of *our* ten millions is concerned to any railway other than that to be constructed from Cincinnati to Chattanooga. It is because the surroundings of this ten million fund are not understood that suggestions are made from time to time to divert it to valuable, but to Cincinnati less important undertakings.

We give the tabulated statement of distances from Chicago, Cincinnati and Memphis via the Washington & Ohio road, as compiled by the *Commercial's* correspondent. It is valuable for reference, and we believe correct.

THROUGH DISTANCES FROM CHICAGO, CINCINNATI AND MEMPHIS, BY THE WASHINGTON & OHIO RAILROAD, TO WASHINGTON CITY, COMPARED WITH OTHER ROUTES FROM THE SAME POINTS.

	Miles.
From Chicago to Washington, via P, F W & C, Pa Cent'l, Nor Cent'l, and Wash Br B & O.....	842
From Chicago to Cincinnati, via C & C Air Line.....	296
From Cincinnati to Washington, via W & O.....	475
Distance saved by the W & O R R	71
From Chicago to Washington, via P, C & St L to Columbus, and Cent'l O Div B & O to Bellaire, and B & O to Washington (present route).....	848
do do by Metrop Branch.....	802
From Chicago to Washington, via W & O, as above stated.....	771
Distance saved by W & O over present route.....	77
do do over Metrop Branch...	31
From Cincinnati to Washington, via M & C and Parkersburg Branch B & O (present route).....	610
do do by Metrop Branch.....	560
do do by W & O.....	475
Distance saved by W & O over present route.....	135
do do over Metrop Branch...	85
From Memphis to Washington, via Alexandria, Lynchb'g, Brist'l, Knoxville, Chattanooga, etc.....	934
From Memphis to Washington, via W & O to Point Pleasant, and to Portsmouth, O, Paris, Ky, Danville, Ky, and Cave city, to Memphis.....	903
From Memphis to Washington, via Cincinnati and Louisville, and W & O...	959

TABLE OF DISTANCES

FROM	By way of Washington & Ohio Railroad and connections.	By way of Baltimore & Ohio Railroad and connections.	By way of Pennsylvania Central and connections.	By way of Erie Railroad and connections.
CINCINNATI				
TO				
Washington.....	475	610	560	685
Baltimore.....	513	583	647	.....
Philadelphia.....	611	681	668	.....
New York.....	698	768	744	860

TABLE OF DISTANCES

FROM	By Washington & Ohio Railroad and connections.	By Orange, Alexandria and Manassas Railroad and connections.	By Norfolk & Petersburg, Virginia & Fauquier, etc.	Via Petersburg, Richmond and Aquia Creek.
MEMPHIS				
TO				
Washington.....	903	934	1,192	Via Chesapeake Bay.
Baltimore.....	941	972	1,159	Via Crisfield and Wilmington.
Philadelphia.....	1,039	1,070	1,202	Plus the distance from Norfolk to N. Y. by water.
New York.....	1,127	1,158	959	

The Best Lubricating Oil.

We have found, after testing thoroughly every kind we could obtain in the market, that the best is the natural oil of West Virginia, as sent to us by Messrs. KRAFT & MOORE of Parkersburg, and in this opinion we are not alone. At the Exposition now going on in our city this among other dark oils was subject to the most severe and repeated trials, and was found to be free from the impurities that usually deteriorate the value of natural oils, and to possess a remarkable body that was purely of that nature to give durability and to sustain the highest friction without heating.

Subjecting this article to further experiments, it was found to be 28° gravity, to sustain its liquidity at a temperature of 12° above zero, and to withstand a pressure of 10 113 lbs. per square inch, approximating in this respect the best and costly article of summer made sperm oil, as that capacity is to 11.164 lbs. per square inch.

But we are supported in our views of the merits of this oil by daily and practical application of it upon sections of the Baltimore & Ohio Railway, the Hocking Valley, Kentucky Central, and Dayton & Union Railroads, and upon the machinery in our own establishment, as well as that of several large manufactories in this city, and all bear the same testimony to its entire relief from destructive agencies, and its durable consistency and lubricating power.

This oil is pumped from wells in West Virginia near Parkersburg, and after being prepared at the establishment of Messrs. Kraft & Moore, of that place, is ready for the market, and can be purchased for about one half the price of the oils that are now in use for lubricating consumption. As a matter of great economy, this valuable article ought to be tried by every railway company and manufacturing establishment in the country; and if it sustains the reputation we have given it, and think it merits, it must be the means of saving a large sum of money for these extensive interests.

We shall be glad to hear from any parties using this oil, whether for or against it, and shall be as quick to disapprove as we have been to proclaim its merits, when we find we are mistaken.

The Knickerbocker Life Insurance Company.

SOME OF THE ADVANTAGES OFFERED BY THIS COMPANY.

1. The Knickerbocker is mutual, because profits are divided among the assured.
2. It issues every desirable form of Policy.
3. It allows the insured to travel and reside in any portion of the United States and Europe, at any and all seasons of the year without extra charge.
4. Its policies dispense with almost all restrictions on occupation.
5. Its rates of premium are as low as any Company can offer and do a thoroughly safe business.
6. It is most liberal in favoring Policy holders in payment of their premiums.
7. It will, if desired, take a note for part of the premium, thus combining all the advantages of a note and all-cash Company. This arrangement favors persons of small means, in securing about one-half more insurance for the same cash payment that can be had in an all-cash Company. It also favors capitalists, who can thus make their money earn more than average interest.

Dividends proportionate with the earnings will be declared annually on all Mutual Policies.

In this Company the Surplus is divided, according to what is generally known as the "Contribution" plan; a system of distribution founded upon the strictest principles of justice and equity, and which has received the sanction and praise of the highest Life Insurance authorities; and upon which, with few exceptions, the Life business of this country is now transacted.

Dividends are declared on the actual premium paid, and are applied as follows:

First.—To the purchase of additional Insurance (without extra charge.)

Second.—In reduction of outstanding premium loans, if any.

Third.—As CASH towards the reduction of future or present premiums (when previous premiums have been paid wholly in cash.) Thus the dividend on the first year's premium can be applied to the reduction of the second year's premium, and so on—annually thereafter.

The dividends of Insurance Companies when made upon just and equitable principles are comparatively small at first, owing to the heavier expenses and risk incurred in proportion to the premiums received, but the longer the policy remains in force the better the dividend is likely to be, provided no extraordinary or unforeseen losses occur, until in time, as experience has shown, they may very probably equal annually the whole amount of the premium.

Atlantic Terminus of the Southern Pacific Railroad.

Col. E. HULBERT, the Superintendent of the Brunswick & Albany Railroad, publishes in the Albany News an elaborate letter upon the Brunswick & Albany Railroad and its connections, and the great value of Brunswick as the seaport of the South Atlantic coast. From this letter we make the following extracts:

Depth of water that can be carried out, and distance of the sea from

Brunswick city—distant 13 miles, depth 24 ft.			
Hampton Roads, " 15 " " 30 "			
New York, " 30 " " 23 "			
Boston, " 100 " " 21 "			
Philadelphia, " 100 " " 23 "			
Baltimore, " 160 " " 16 "			

THE HARBOR,

which includes the southern portion of St. Simon's sound, Oglethorpe bay, and the mouth of Turtle river (forming one of the most beautiful sheets of water in the world), completely landlocked, affords the amplest protection to vessels from ocean swells and destructive gales. Extending fifteen miles in length, averaging four or more miles in width, with a depth of water varying from twenty to sixty, and in many places more feet, Brunswick city harbor can accommodate and float with ease, in perfect security, not only the present navy of the United States, but that required should the Union comprise the two American continents.

THE LOCATION.

Brunswick city is laid out on a peninsula or tongue of land, bounded on the east and south by St. Simon's sound and Oglethorpe bay, which separates it from St. Simon's and Jekyll islands, and on the west by Turtle river. The city limits extend about three miles north and south, and about one mile east and west, with a water frontage of ten or more miles, with from sixteen to forty feet of water at the wharves. There is, therefore, ample wharf accommodation for a commercial marine equaling that of any city on the globe.

ITS RAILWAY CONNECTION.

First in order is the Macon & Brunswick Railway, completed last year. By means of this line Brunswick is connected at Macon, with Columbus, via the South western Railroad; with Augusta, the Carolinas, and the entire north, by the Macon & Augusta Railway; and by the Macon & Western with Atlanta, now looming up as the great interior commercial metropolis of the South, and thence, by direct, rapid and intimate railway connection with the most remote of the great grain growing States watered by the tributaries and sources of the Mississippi, Missouri and Ohio rivers.

Forty miles distant, the Macon & Brunswick is crossed by the Atlantic & Gulf, which connects her by rail with Florida and the Gulf of Mexico on the south, and with Savannah and Charleston, and through them with all the country east of the Alleghanies, and the great cities north and east.

Next in order is the great enterprise now progressing—the Brunswick & Albany, or Brunswick & Southern Pacific Railway.

Its completion in its entirety will place her in direct and uninterrupted communication by rail, by the shortest line practicable between the Atlantic and Pacific oceans, with San Francisco and San Diego, and make Brun-

wick city the grand southern gateway for the trade of the great Pacific States, northern Mexico, and Japan and China, as well as the principal outlet for the immense cotton and other products of the Gulf States, and such of the surplus products of the great Lake and Central North western States as may seek markets east and south of Brunswick.

ITS COAL TRADE.

To crown the whole, and place the question as to the superiority of Brunswick as a great seaport beyond further controversy, it may be remarked in conclusion, that the immense coal measures of Alabama—especially of the Black Warrior district—place coal within so short a distance, with the assurance of certain and prompt delivery, and, consequently, at such low rates, that ocean steamers need not, and will not, be delayed for want of a plentiful supply; thus making Brunswick the coaling station for all the European and United States steamers engaged in the West India, South America, Central America, Mexico and the Gulf ports, and the South Atlantic trade generally.

THE PROSPECTS

of the Brunswick & Albany Railway may be regarded as without a parallel in railway history, and promising the most brilliant success of any other on the continent.

It commends itself most strongly to all on its line, and connecting lines, to all interested in the material and social advancement of this section, to the country at large, and to Europe on account of its connection, at an early day, by the shortest line it is possible to build, with the Pacific ocean; and especially to all seeking profitable investment for surplus capital.

Industrial Agent of the Kansas Pacific Railway.

A call from the distinguished gentleman, Mr. R. S. ELLIOTT, who fills this important and unique position, reminds us that he sets out as his principal duties:

1st. To investigate, and to some extent test, the capabilities of the country along the line of the railway, for the production of trees and plants, from the present western limits of settlement in Kansas to the settlements of Colorado.

2d. To superintend plantations of forest in Kansas and Colorado for the future uses of the railway.

3d. To compile exact information, where possible, in regard to water supplies for settlements, in the region traversed.

4th. To aid in diffusing reliable data in regard to the actual resources of the Plains, and their adaptation to economical uses.

These are very laudable undertakings, and the Kansas Pacific Company deserve great credit for making a separate bureau of this department, and placing it under the management of so competent and worthy a gentleman as Mr. Elliott, whom we have no doubt will, in time, return to the company many fold of all they expend in sustaining him in his duties.

Mr. Elliott's intelligent and active course in the late Southern Commercial Convention held in this city, made him many friends, and inspired great confidence in the results of his labors on the great western plains. We shall be glad to greet him again at any time.

Land Grant Railroads.

The following is an official list of the land grant railroads of the country:

MICHIGAN.

	Acres.
Jackson, Lansing, and Saginaw Railroad, from Hillsdale to Traverse Bay; estimated quantity of reserved alternate sections undisposed of.....	450,000
Port Huron and Milwaukee and Detroit and Milwaukee Railroads, from Port Huron to Grand Haven; estimated quantity undisposed of.....	75,000
Flint and Pere Marquette Railroad, from Flint to Marquette; estimated quantity undisposed of.....	200,000
Grand Rapids and Indiana Railroad, from Fort Wayne, Indiana, to Traverse Bay; estimated quantity undisposed of.....	300,000
Marquette and Ontonagon Railroad, from Marquette to Ontonagon; estimated quantity undisposed of...	250,000
Chicago and North western Railroad, from Marquette to mouth of Menominee river; estimated quantity undisposed of.....	275,000
Total acres.....	1,550,000

IOWA.

Iowa Falls and Sioux City Railroad, from Duquaque to Sioux City; estimated quantity undisposed of.....	150,000
McGregor and Sioux City Railroad, from McGregor to a point in O'Brien county; estimated quantity undisposed of.....	200,000
Sioux City and St. Paul Railroad, from Sioux City to St. Paul, Minnesota; estimated quantity undisposed of.....	125,000
Sioux City and Pacific Railroad, from Sioux City to Fremont, Nebraska; estimated quantity undisposed of.....	625,000
Total acres.....	1,100,000

WISCONSIN.

West Wisconsin Railroad, from Tomah to Lake Superior; estimated quantity undisposed of.....	600,000
St. Croix and Lake Superior Railroad and branch to Bayfield, from St. Croix to Superior and branch to Bayfield; estimated quantity undisposed of.....	550,000
Chicago and North-western Railroad, from Fond Du Lac to Green Bay; estimated quantity undisposed of.....	300,000
Portage, Winnebago and Superior Railroad, from Portage City to Bayfield, and thence to Superior, estimated quantity undisposed of	1,200,000
Total acres.....	2,650,000

MINNESOTA.

St. Paul and Pacific Railroad, from St. Paul to mouth of Siouxwood river; estimated quantity undisposed of.....	650,000
Branch of St. Paul and Pacific Railroad, from St. Paul to Crow Wing; estimated quantity undisposed of.....	800,000
Minnesota Central Railroad, from St. Paul to Iowa State line, range 18 west; estimated quantity undis-	

posed of.....	400,000
Winona and St. Peter Railroad, from Winona to St. Peter; estimated quantity undisposed of.....	750,000
St. Paul and Sioux City Railroad, from St. Paul to Sioux City, Iowa; estimated quantity undisposed of.....	500,000
Lake Superior and Mississippi Railroad from St. Paul to Duluth; estimated quantity undisposed of.....	500,000
Minnesota Southern Railroad, from Houston to Big Sioux Lake; estimated quantity undisposed of.....	400,000
Hastings and Dakota River Railroad, from Hastings west to a point on State line; estimated quantity undisposed of.....	300,000
Total acres.....	4,300,000

MISSOURI.

Hannibal and St. Joseph Railroad, from Hannibal to St. Joseph; estimated quantity undisposed of.....	150,000
Atlantic and Pacific Railroad, from St. Louis via Springfield to State line; estimated quantity undisposed of.....	200,000
Cairo and Fulton Railroad, from Cairo to State line of Arkansas; estimated quantity undisposed of.....	50,000
Total acres.....	400,000

ARKANSAS.

Cairo and Fulton Railroad, from point on State line in Randolph county, via Little Rock to State line of Texas; estimated quantity undisposed of.....	550,000
Memphis and Little Rock Railroad, from Memphis to Little Rock; estimated quantity undisposed of.....	250,000
Little Rock and Fort Smith Railroad, from Little Rock to Fort Smith; estimated quantity undisposed of.....	400,000
Total acres.....	1,200,000

KANSAS AND NEBRASKA.

Kansas Pacific Railroad, from Omaha to a point near Ogden, in Utah; estimated quantity undisposed of.....	9,000,000
St. Joseph and Denver City Railroad, from St. Joseph to Denver City, Colorado Territory; estimated quantity undisposed of.....	1,000,000
Kansas and Neosho Valley Railroad, from Eastern terminus of Union Pacific to a point on Red river; estimated quantity undisposed of.....	1,200,000
Southern Branch of Union Pacific, from Fort Riley to Fort Smith, Arkansas; estimated quantity undisposed of.....	850,000
Total acres.....	12,050,000

NEVADA.

Central Pacific Railroad, from a point near Ogden, in Utah, to Sacramento, California; estimated quantity undisposed of.....	3,500,000
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CALIFORNIA.

Central Pacific Railroad, from a point near Ogden, in Utah, to Sacramento; estimated quantity undisposed of.....	1,000,000
Western Pacific Railroad, from Sacramento to San Jose; estimated	

quantity undisposed of.....	800,000
California and Oregon, from Roseville to Portland, Oregon; estimated quantity undisposed of.....	1,200,000
Southern Pacific, from San Jose to a point on Colorado river; estimated quantity undisposed of.....	300,000
Stockton and Copperopolis; estimated quantity undisposed of.....	250,000
Total acres.....	6,250,000

OREGON.

Oregon and California Railroad, from Portland to Roseville, California; estimated quantity undisposed of.....	1,250,000
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COLORADO TERRITORY.

Kansas Pacific Railroad, from a point on the Missouri river in Kansas, to Denver City; estimated quantity undisposed of.....	2,000,000
Denver Pacific Railroad, from Denver City to connect with Union Pacific in Wyoming Territory; estimated quantity undisposed of.....	2,600,000
Total acres.....	4,600,000

UTAH TERRITORY.

Kansas Pacific to a point near Ogden.....	2,500,000
Also, statement showing the estimated quantity of alternate reserved sections now and to be hereafter made subject to homestead entries as the surveys and line of the Northern Pacific Railroad progresses, as follows: Estimated quantity for that portion of road in Wisconsin.....	1,000,000
Estimated quantity for that portion of road in Minnesota.....	2,000,000
Estimated quantity for that portion of road in Oregon.....	1,500,000
Estimated quantity for that portion of road in Washington Territory.....	3,800,000
Total acres.....	8,300,000

Dust and Cinders.

The occupants of railway cars continue to be afflicted with the dust and cinder nuisance despite all the efforts of inventors to devise some effectual means to put an end to it. Almost every other discomfort incident to railway traveling has been remedied or very much diminished; but how to get rid of the dust is a problem not yet solved. A great many plans have been suggested, some of them manifestly impracticable, or involving an expense too great to be incurred. To admit the air necessary for wholesome ventilation, and at the same time exclude cinders and dust, is a difficult thing to accomplish; but sooner or later we think it will be accomplished. The *American Artisan* presents the following plan, which we regard as entitled to the consideration of railway managers:

"A pipe opening at the front end of a car will allow the air to enter through it in a current, having a velocity equal to the speed of the train, and there is no more skill needed in fitting a pipe in this manner than in putting a cowl on a common chimney. To cause the air-current to pass through water, so that its suspended dust and cinder particles may be washed away, would require nothing but an application of the well known principle by which gases are made to pass from the mouth of a chemist's retort to a receiver through the water of a pneumatic trough. To conduct

and distribute the air thus purified, and, if the temperature of the water were sufficiently low, also cooled by its contact with the latter, to the interior of the car, would necessitate only a very simple arrangement of tubes or pipes. Here, then, we have the essentials, well known and often enough embodied in the work of inventors, of a practical system of removing from railway transit one of its greatest annoyances; but that they will be found in common use or application for many a day to come, we do not believe. To believe it would, indeed, argue a greater faith in the progressiveness of railway corporations than we have any warrant for possessing."

Ohio Cities in the Census.

Under the heading "Curiosities of the Census," the Philadelphia *North American* has the following article:

The cities of Ohio generally show, by the returns of the present national census, a very handsome increase in population during the past decade. Cincinnati is, perhaps, the only exception, that great city not having made progress commensurate with that of the other leading cities of the West. Nor, indeed, does Ohio herself seem to have concentrated her attention upon her metropolis, the minor cities having increased at the expense of the latter. We alluded some months since to the extraordinary development of Cleveland, and the census fully sustains all we then said. In 1860 the population of that city was 43,417, and in 1870 it is 93,018, an increase of more than one hundred per cent. This remarkable progress will be more fully appreciated by reference to the following comparisons:

	1850.	1860.	1870.
Detroit.....	21,619	45,609	79,601
Milwaukee.....	20,061	45,246	71,403
Cleveland.....	17,034	43,417	93,018

It will be seen that Cleveland has, in the last decade, overtaken and passed these two cities that have been ahead of her for twenty years. Detroit is the metropolis of Michigan, and has a most advantageous position for trade with Canada, while Milwaukee is the metropolis of Wisconsin, and has at length taken from the grasp of Chicago the position of the leading grain market of the north-west. Yet Cleveland, with nothing to depend upon but her manufactures and her own efforts in trade, has passed both cities. The explanation is simple. Cleveland has devoted herself to iron manufactures and the refining of petroleum, for which her proximity to Pennsylvania offered her peculiar facilities. She has also transacted a large trade with the mineral region of Lake Superior and also in the shipment of coal to the lake regions. There could not be a more striking exemplification of the power of coal and iron to create a great city than is afforded by Cleveland. It seems altogether probable that in the course of the ensuing decade she will overtake and pass Buffalo, which now only foots up some 110,000 people.

Another Ohio lake city, Toledo, exhibits remarkable growth, its population, which was 13,758 in the year 1860, having now risen to 31,693. The ambition of this young city is so over-weening as to have drawn upon her no small amount of ridicule; but she has worked ahead rapidly notwithstanding. This growth appears to have exceeded in ratio that of all the other principal cities of Ohio. Columbus having increased from 18,554 in 1860, to 31,336 in 1870, and Dayton from 20,081 in

1860 to 30,886 in 1870. It will thus be seen that Toledo has passed all these, and from being the fifth in rank among the cities of Ohio in 1860, has now risen to be the third. All the Ohio cities are industrial as well as railroad centers, and it is to this that they all owe their progress. Youngstown has risen from 2,750 in 1860, to 10,476 in 1870, while Akron has jumped from 3,477 to 10,010.

There are probably few States in the Union where there are more centers of population, industry, trade and transportation of real importance than Ohio, and possibly the steady growth of all these places has the effect to take away from the progress of Cincinnati, there being, apparently, no such disposition toward centralization as makes St. Louis the representative of Missouri, and Chicago of Illinois. It is a curious fact that of third-class cities like Toledo, Columbus and Dayton, there are more in Ohio than in Pennsylvania, notwithstanding all our population, wealth and resources. We can only name in this State, Reading, Lancaster, Harrisburg and Erie, and of these, Reading alone comes up to the population of the Ohio cities above mentioned. Yet, all of our towns have an immense advantage over their Ohio competitors in our inexhaustible mineral resources and abundant wealth.

The difference seems to be that the movement of population in Pennsylvania has been almost wholly absorbed in building up two great cities of the first-class, Philadelphia and Pittsburgh, while in Ohio the peculiar character of the railroad system has prevented concentrated effort of any kind, and divided the growth of the State among a number of minor cities. Cleveland alone appears to be starting forward for a great career; and that mainly owing to her reliance upon coal and iron, like her neighbors of Pennsylvania. Her growth bears little resemblance to that of any of the Ohio cities. Her people build constantly, and are thus keeping their city always supplied with cheap dwellings. Industry can be carried on there much more economically than in any other of the Ohio cities. Her intercourse, in fact, is more largely with Pennsylvania than with Ohio, and with Pittsburgh than with Cincinnati. It is not at all improbable that she may become the chief city of Lake Erie, and thus push Buffalo aside from the position she has so long occupied. A great deal, however, will depend upon the railway developments of the next few years, and the Cleveland journals are beginning to be anxious about the developments in the Lake Superior trade.

COMMERCE OF CITIES ALONG THE OHIO RIVER.—The first annual report of the Cincinnati Board of Trade affords us much valuable information, especially in regard to the commerce of places along the Ohio river. The value of the commerce on the Ohio for 1869 is stated at \$715,000,000. Pittsburgh is credited with \$150,000,000, and exports iron, coal, lumber and general manufactures; Wheeling, coal, iron, nails, glass, etc., \$30,000,000; Portsmouth, iron, machinery, etc., \$12,000,000; Cincinnati, general manufactures, \$169,500,000; Madison, starch, whisky, flour and pork, \$12,000,000; Louisville, tobacco, hemp, etc., \$115,000,000; New Albany, general trade, \$15,000,000; Evansville, grain, pork, tobacco and whiskey, \$12,500,000; Wabash River, grain, flour and produce, \$15,000,000; Smithland, grain and produce, \$30,000,000; Paducah, grain and produce, \$40,000,000; Cairo, cotton, salt and grain, \$20,000,000.

The Railroad Water Trough.

The Hudson River Railroad Company recently constructed at Montrose Station, a trough in the center of the track, one thousand two hundred feet in length, fifteen inches in depth and eighteen inches wide, and caused it to be lined with sheet iron heavily painted. This trough is perfectly straight throughout the entire one thousand two hundred feet. A short distance to the north-east of it is a spring which supplies it with water, the trough holding sixteen thousand gallons, which can be let into it at will.

Locomotive No. 43, Ned Sandford, engineer, was taken from the road and put into the shop, where, in a quiet manner, skillful mechanics soon fitted her out with an ingeniously formed pipe, curling from the man-hole in the tender down through the latter to a position inside of kind trucks, where the pipe forms a half circle, at the end of which is the nozzle which always points the way which the engine goes. Fastened to this nozzle is an iron bar, which connects with a bar from a point near the fire man's box, by which, when the locomotive comes to the trough, the nozzle or pipe can be dropped instantaneously into the water, while the train is running at the rate of thirty miles an hour. The nozzle sinks to only a depth of two inches in the trough, yet even at that depth, when the one thousand feet is passed, over one thousand six hundred and thirty-five gallons of water will be found in the tender.

There are many improvements connected with it, all the handiwork of Master Mechanic William Buchanan. He has been at work experimenting since the 20th of May last, and has always been encouraged by Superintendent J. N. Toucy, who has been a firm believer in the plan from beginning to end. The first experiment in taking, or as some of the engineers say, "jerkling the water" occurred a few days ago. The locomotive dashed over the rails, even to which is the trough, at the rate of thirty-five miles an hour. As the nozzle struck the water, the fluid rushed into the tender with a roar like a young Niagara, and when the trough was left behind, the fireman found his tender full.

Every movement was crowned with success, and the locomotive later in the afternoon was attached to the New York special which left Poughkeepsie at 4:15 P. M., which train proceeded direct to New York without stopping anywhere, a feat at once novel and giving promise of greater deeds in the future. It is next proposed to locate a trough between Catskill and Hudson, and points in the Central road, so that in time, trains aided by this process of stopping nowhere for water, may run through to Chicago in twenty-six hours. The Hudson River Railroad Company was the first in this country to adopt the important invention, and in fact all others of any consequence. It is indeed one of the greatest inventions of the age, and must come into general use on railroads.—*Poughkeepsie Eagle.*

Montana Territory, according to the complete census returns, has a population of 38,580, divided as follows: whites, 17,992; negroes and of mixed blood, 179; Indians and mixed blood living among the whites, 473; Chinese, 1,936; Indians, living in tribes on the reservations, 18,090. The 17,992 whites are composed of 14,582 males and 8,410 females. The 1,936 Chinese are composed of 1,807 males and 129 females.

India Rubber.

Caoutchouc, or India rubber, as it is more commonly termed, is obtained from the milky juice of trees and vines of different countries. It is exported in its crude state from South America, Central America, Mexico, East Indies, and Africa; the rubber obtained from these countries differing materially from each other, which is due, to some extent, to the different methods adopted in curing it.

The best and leading quality is considered to come from Para, Brazil, S. A., termed "Para rubber." It is gathered by the natives in the interior of Brazil, from trees of large growth, which are "tapped" once a year, by making incisions in the bark, commencing near the base of the tree, sometimes in the roots which lie exposed. These incisions are repeated once a fortnight during the season for gathering rubber, continuing them up the trunk of the tree. It is stated that the production from the roots which lie exposed is more abundant in the elastic gum, than any which is subsequently drawn off. A milky emulsion containing the caoutchouc exudes at these orifices, which is collected by means of gourds or cocoa nuts attached to the tree by means of clay; these, when full, are emptied into buckets. A fire is then made from nuts peculiar to this country, which in burning emit a dense smoke that has the property of curing and drying the rubber in a superior manner. Molds of a variety of forms, but principally made from wood about one inch in thickness, either round or oval, are then dipped into the liquid and passed through the smoke; when the gum becomes dry and solid they are again applied to the liquid for a second coating, and redried; this process being continued until the coating becomes from half to one inch in thickness; the layer is then cut open, the mold removed, and the rubber is ready for shipment to Para, from which port it is shipped to the markets of consumption. The finest and best of this production is termed "Fine Para," that which is a little inferior in quality or texture, "second," or "medium;" while all the scraps and refuse are compressed into large balls or blocks, and called "sernamby," "coarse," or "negro-head." Much has been said relative to the exhaustion of this supply. The trees, if not abused, will yield for an almost indefinite period, the older trees furnishing a juice which is much richer in caoutchouc than any others. The increased production of this rubber is readily shown by the following table of exports from Para:

	To United States.	To Europe.
1851.	1,700,000 lbs.	1,250,000 lbs.
1855.	2,650,000 "	2,150,000 "
1860.	2,300,000 "	2,800,000 "
1865.	3,000,000 "	5,100,000 "
1869.	5,700,000 "	4,850,000 "

Rubber from New Granada, Ecuador, and Central America, is exported in a variety of forms, namely, slabs, sheets and pressed strip. This rubber is cured in an entirely different manner from the Para rubber; the milk after it is collected being allowed to coagulate, and then run into thin sheets or slabs, the latter varying from one to four inches in thickness, which are dried as thoroughly as possible in the sun. The rubber so cured contains much acid natural to the milk, as well as a large percentage of water. The pressed strip rubber is all exported from Panama where it is collected from the interior in slabs, which are cut into narrow strips and run through powerful presses, extracting the water, compressing

the rubber, and preparing it for the market in a better condition than when shipped in the wet state. Mexican, East India and African rubber are all cured in the same manner as Central American rubber. In Africa, most of the rubber-milk is collected from a large vine, similar to our native grape vine. Although the trees grow there in abundance, it is all collected in the district surrounding Gaboon, directly on the equator. The rubber trees are very numerous on the gold coast in Guinea farther north, but there is no rubber collected in that district. Much of the African rubber is prepared by filling reeds from six to ten inches in length with the milk from the vine, which, when hardened, is taken out and left in the sun to dry. So prepared it is termed tongue. The other quality, flake, comes in different shapes and sizes, but is not so free from dirt, being allowed to run upon the ground and dry after which it is collected. The best African rubber comes from the Congo river, about six degrees south of the equator. It is prepared in the shape of balls, and termed ball rubber. The East India and African rubber is of a softer and more gummy nature than the other kinds of rubber, and is generally used in manufacture for a sticking substance, and in the manufacture of hose. The annual consumption of all kinds of rubber in the United States in 1858 amounted to about 2,500,000 pounds, which has now increased to from 9,000,000 to 10,000,000 pounds.

The value of the products of several cities for 1869, is as follows:

New York.....	\$353,800,430
Philadelphia.....	303,235,099
Boston.....	132,283,108
Cincinnati.....	119,140,989
St. Louis.....	61,580,454
Chicago.....	30,229,146
Louisville.....	31,976,802

The progress of Cincinnati in manufactures is seen in the following aggregate production at several decadal years:

1840.....	\$16,360,443
1850.....	46,789,279
1860.....	104,657,612
1870.....	119,140,089

The number of hands employed in our manufacturing is 59,354, equal to a population of 150,000 supported by this business alone.

The report contains full and interesting tables illustrating our commerce, our railway, canal and steamboat interest, &c., &c.:

Cost of Road

Compa's & Equipm'ts Earnings. Expenses.			
A & G W.	\$59,723,844	\$5,097,367	\$3,459,299
C. & I J...	5,803,061	221,940	213,681
C. R. & C.	947,885	100,503	108,585
C. S. & C.	5,700,000	799,469	692,690
C. & I.....	1,894,478	233,567	125,634
C & Z.....	2,969,361	345,842	299,796
C, H. & D.	5,297,260	1,198,847	777,497
D. & M.....	6,489,836	1,027,356	697,717
L. M.....	7,786,469	1,680,316	1,118,019
M. & C.....	19,635,013	1,350,720	1,252,182
O. & M.....	29,190,211	2,855,152	1,978,524

Totals \$145,457,418 \$14,907,088 \$10,723,624

The Commissioner of Mining Statistics gives the product of precious metals in the United States last year at \$63,500,000, distributed thus: California, \$20,000,000; Nevada, \$14,000,000; Oregon and Washington Territory, \$4,000,000; Idaho, \$7,000,000; Montana, \$12,000,000; Colorado and Wyoming, \$4,000,000; New Mexico, \$500,000; Arizona, \$1,000,000; other sources, \$1,000,000.

THE ST. LOUIS AND SOUTH-EASTERN RAILWAY.—The company building this line of railway was organized under special act of the Legislature of Illinois, March 24, 1869, with authority to build from Eastern St. Louis by way of Mt. Vernon, McLeansboro and Equality to the Ohio river at Shawneetown, a distance of 140 miles.

The first division, extending from East St. Louis to Mt. Vernon, crossing the Illinois Central at Ashley, will be put in operation on the first day of November next, the distance being 75 miles. One section of the Eastern division, extending from Shawneetown to Equality, 12 miles, will also be completed at the same time. It is the intention of the company to finish the whole road next year, and probably, to aid in the construction of the Shawneetown and Madisonville Straight Line Railroad, which will connect with the Evansville, Henderson and Nashville Railroad, now about completed. The distance from St. Louis to Nashville, Tenn., by this new and almost air-line route, will be 284 miles, and can not be practically shortened.

At Mt. Vernon, the proposed St. Louis and Louisville Railroad will connect, and when built, will reduce the distance between these two great cities to about 250 miles. The construction of this important link has been commenced, and one section is to be put in operation during the current year.

The local aid upon this railway line will exceed \$1,500,000. The remainder of the means required to complete the road is raised by preferred stock and an issue of first mortgage, convertible bonds, amounting to about \$15,000 per mile, which was placed in the hands of Messrs. George Opdyke & Co., of New York, the company's financial agents.

The coal fields opposite St. Louis and near the Ohio river, will afford a very large business for the road. At Equality, the Salines are now worked successfully, and will undoubtedly be developed to a very large extent.

—The first annual report of the officers to the stockholders of the East Tennessee, Virginia and Georgia Railroad Company made on the 7th of September has just been issued. The earnings for the year ending June, 1870, were as follows:

From passengers.....	\$508,108 36
From freights.....	696,452 90
From Express freight.....	26,484 51
From United States Mail.....	33,535 51
From miscellaneous sources...	14,282 43

\$1,278,863 80

Ordinary expenses for the same time..... 716,182 12

Net earnings for the year... \$562,681 68

—The immense bridge over the Missouri, at Hannibal, to be built for the Toledo, Wabash and Western, the Hannibal and Naples, Hannibal and Moberly and North Missouri roads, is now under contract with the Hannibal Bridge Company. This company is controlled in New York by the heaviest stockholders and owners of the roads, in whose interest the bridge is being built. The President is Mr. A. M. White, of New York; Chief Engineer, Colonel E. D. Mason; and Consulting Engineer, Mr. Warren Colburn, of Toledo.

The bridge is to be ready for use by August 1, 1871. The materials required for the work are as follows: 400,000 lineal feet of piles; 1,000,000 feet of timber and lumber; 10,000 tons of masonry; 10,000 tons riprap; 4,000 tons concrete; 1,350 tons of iron.

—In 1828 there were three miles of railway in the United States, and now we have 48,860 miles, and the increase can not be less than thirty miles per day.

—The Pullman Palace Car Company, organized 1867, with a capital of \$1,000,000. It runs its cars over 15,000 miles of railway and employs about 3,000 men.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

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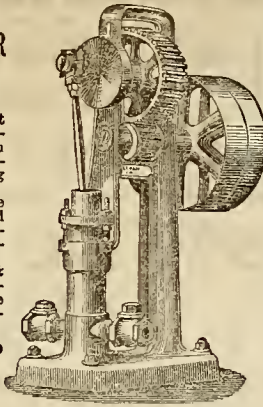
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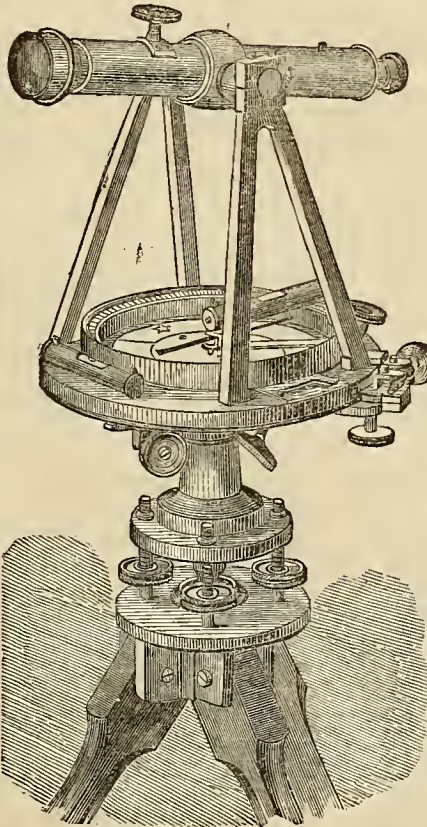
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JANUARY 1st, 1870.

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Ohio & Mississippi Railroad,

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The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

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Established in 1836

All kinds of Railroad Machinery

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ERIE RAILWAY.

1400 MILES under One Management. 860 MILES without Change of Coaches.

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NEW YORK, BOSTON,

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And Principal Points in

NEW YORK, NEW ENGLAND

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TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M. CINCINNATI EXPRESS.

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst.); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

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The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street New York, thus enabling passengers to reach the lower portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Checked Through
And Fare always as Low as by any other Route.

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Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUCK, General Southern Agent.

Best Route to St. Louis and Chicago

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CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy, Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West. North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail	7.20 am	12.41 am
St. Louis and Springfield Express	2.40 pm	7.35 am
St. Louis and Springfield Express	10.20 pm	3.42 pm
Lawrenceburg Accommodation	10.10 am	2.35 pm
Lawrenceburg Accommodation	4.30 pm	8.25 am

*The 10.10 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail	7.00 am	10.15 am
Chicago Express	6.50 pm	9.30 pm
Harrison Accommodation	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway)	7.40 A. M.	6.30 P. M.
do do do	9.45 A. M.	7.40 A. M.
Toledo, Detroit & Canada	7.15 A. M.	10.25 P. M.
do do do	6.30 P. M.	7.40 A. M.
Lima Fort Wayne & Chicago	7.15 A. M.	10.25 P. M.
do do do	2.30 P. M.	5.40 P. M.
do do do	6.30 P. M.	7.30 P. M.
Sandusky, Cleveland & Buffalo	7.15 A. M.	5.40 P. M.
Springfield Accommodation	2.30 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo	6.30 P. M.	10.20 A. M.
Muncie & Indianapolis	7.15 A. M.	10.25 P. M.
do do do	5.00 P. M.	1.30 P. M.
Hamilton, Easton & Richmond	7.15 A. M.	10.25 P. M.
do do do	5.00 P. M.	10.20 P. M.
Hamilton Accommodation	9.30 A. M.	8.45 A. M.
do do do		6.50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

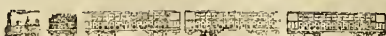
For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Agt.

Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sunday). Stops regularly at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Luzon, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMERGENCY—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:00, 3:30, 4:45, 4:50, 4:55, 5:10, 5:25, 5:45, 6:00, 6:25, 7:10, 7:22, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Aster House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, -- THURSDAY, OCTOBER 27, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

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Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Proprs.

CINCINNATI.

Its Growth, and its Needs.

It is understood, but the fact is we believe not officially published, that the population of Cincinnati is within its present corporate limits about 220,000. At the same time the population of Chicago is 297,000; and that of St. Louis is 314,000. The census, however, is not the true indication, for the true population of a city is not what is within corporate, or even State limits; but what number of people do business in it and find their market there. Now in Boston, New York and Cincinnati there are great suburb populations; while in Philadelphia, Chicago and St. Louis there are not. The three former do not include their suburbs, because they are cut off by water courses; but Chicago and St. Louis include all they have. Boston has full 300,000 people; New York, 1,500,000; (which includes Brooklyn and Jersey City,) and Cincinnati full 260,000, (which includes Covington, and Newport,) and with the villages, near 300,000. But of course, this is not a matter which the census can consider, but it is one for merchants and business men to regard. But there is another point of view in which the growth of these cities is to be looked at, and which is the true one. This is, that the growth of each of these cities is the result and necessity of the peculiar region around it. There is not the slightest natural rivalry, or ever can be, between Cincinnati, St. Louis, and Chicago. They are at the angle of a triangle,

whose sides are each nearly 300 miles in length. They are three times as far from each other as New York, Philadelphia, and Baltimore; and the regions in which they are placed are dissimilar, and do not interfere at all with one another. Cincinnati is the capital, workshop, and market of the Ohio valley; and nothing can prevent its being so. Louisville, at the falls of the Ohio, was the only place which could be the rival of Cincinnati in the Ohio valley; but Louisville long since ceased to be a rival, (although always attempting to be so) and does not keep pace with the growth of Cincinnati. It is to the growth of the Ohio valley and its proper development, that Cincinnati must look for its own development; but any one who looks around Cincinnati, will see that the Ohio valley has not developed fast; that its own peculiar resources have not been developed; and that Cincinnati has really little communication with the Ohio valley,—except on the north side. Hence it is, that Cincinnati has not grown so rapidly as Chicago and St. Louis; and this brings us back to the influence of railroads. The growth of railroads at Cincinnati practically ceased fifteen years ago, because that growth was confined to the north side of the Ohio. Hence all the sluggishness, and the incessant complaints of that sluggishness in Cincinnati. If a man has but one arm, when he should have two, it is very evident he will do but half the work he ought to have done. This is plain enough, and this is the condition of Cincinnati, and will remain the condition of Cincinnati while Cincinnati allows herself to be cut off from the direct Southern trade. We say allows herself, for Cincinnati has capital enough and to spare, to go on with the Southern road, without any aid from the Kentucky Legislature; but in the mean time, let us see what Cincinnati has done with one arm. The following is the growth of Cincinnati during the last forty years:—

1830.....	24,831		
1840.....	46,338	Increase	90 per cent.
1850.....	115,438	"	150 " "
1860.....	161,044	"	39 " "
1870.....	220,000	"	34 " "

Now these figures are not very difficult to understand, by those who understand any thing about Cincinnati. The largest increase was from 1840 to 1850. Now that, and the next three years to 1853, was the railroad era of Cincinnati; and it produced exactly the same effects as we have seen in Chicago and St. Louis. From 1840 to 1853, Cincinnati, which in 1840 had only 46,000 inhabitants, increased 100,000. But in 1854 there was a commercial convulsion, and a railroad stoppage. The result was, that in the next four or five years, Cincinnati almost stopped growth at all, and the increase from 1854 to 1860 was very little. The growth from 1860 to 1870 would doubtless have been much greater, but for the war. From 1861 to 1864, there was a positive decrease in the growth of Cincinnati.

But when the war was evidently about to end in favor of the Union, Cincinnati began to grow, and in the last three years has fairly got under headway again, especially in regard to manufactures. Mechanical industry, and a variety of manufactures is the forte of Cincinnati; and it has not lost any part of its power in that respect. From 1860 to 1870, (as proved by the report of the Board of Trade,) the manufactured products of Cincinnati have almost doubled. The total value of products in Cincinnati in 1870 is about equal to that of the whole State in 1860. This is beautifully exhibited in the Industrial Exposition. We doubt whether any greater exhibition of manufactured products was ever made in the United States, and we feel assured that no other place in the country has better advantages for manufacturing. Even if the South is to be mainly closed against Cincinnati by reason of (and we say plainly that is the reason,) the listless apathy of her citizens, and especially of her men of property. Still Cincinnati will grow, and in less time than New York took for it, will be as large as New York. Taking the last two ratios, (39 and 34 per cent.,) and with it the peculiar drawback of the war, we may take it for granted that Cincinnati will increase at least 35 per cent. decennially. This will make the next three censuses stand thus:—

1870.....	220,000
1880.....	300,000
1890.....	406,000
1900.....	550,000

But this the reader sees, is very slow growth, compared with what Cincinnati has had in the past; and very slow in comparison with what it may have. How may it have more? Simply by using its other arm; and doing what ought to have been done thirty years ago, making by its own citizens, and controlling the road to the South. This is what New York, Philadelphia, St. Louis, and other cities have done, and what commercial communities must do, if they mean to advance. The Kentucky Central road now goes about 80 miles into Kentucky; why not carry it through Kentucky? What is to hinder it? What is to hinder its being carried on just where we intended to go? The truth is, that the original plan was right. If Cincinnati will raise two millions of dollars, (which ought to be a very easy thing among her commercial men and property holders,) the Southern road will be made, and made where it ought to be; South Carolina, North Carolina, Georgia, and East Tennessee have been not only willing, but longing to join hands with Cincinnati, and pour all their western business into her lap. But Cincinnati has practically done nothing, except help make the road to Lexington. What is the use of resolutions, and plans, and votes and trustees, if you do nothing? And yet, nothing is done! He who would thrive, must put his hand to the plough. Now what would Cincinnati be if the Southern road was

made? At least 50 per cent decennially would be her growth. What would that be? Here it is:—

1870.....	220,000
1880.....	330,000
1890.....	465,000
1900.....	700,000

That is, in thirty years the Southern road would add 150,000 to the population at the very least, and a much greater proportion to her manufactures and her commerce. The value of property in the mean time would be trebled. Ye men of property, what think ye of it?

Cincinnati & Springfield Railroad.

On the 21st of this month, some of the people interested in this valuable work convened at Lebanon for the purpose of apportioning the amount required by certain parties to insure the construction of the road, and the distribution was made as follows, upon the basis of \$4,000 per mile:

Clarke county.....	\$40,000
Greene ".....	72,000
Warren ".....	96,000
Butler and Hamilton counties...	44,000

Total..... \$252,000

And to raise this fund, a committee of seven was appointed from each county, who are pledged to go to work at once, and devote their time to this undertaking.

From a committee of gentlemen living upon the line of this road who called to consult with us upon this matter, we learn that the proposition made to the people is, that they shall raise the sum of \$250,000, to be donated when the road is completed and in operation; or, the sum of \$500,000 to be paid in installments from time to time, as the work upon the road progresses, and as they may be called for by the managers, and to be represented as stock in the company.

The first proposition is equal to about \$4,000 per mile of the road proposed to be built, and the second to \$8,000 per mile.

From the distribution proposed at the Lebanon meeting, it is evident that it is intended to try the *bonus* plan first; and we suppose, if that fails, then to try the stock plan.

From all we can learn, either from the gentlemen who called upon us or the reports of the public press, we are unable to ascertain who is to be the recipient of this handsome donation, nearly enough to grade the road, whether it is the contractors, the company, or those active spirits who are the originators of the scheme. In the main, it is probably about the same to the parties who give, provided, they accomplish their desires by so doing, viz: to secure the road; yet, we believe it would be much more satisfactory, and, the amount could be more readily obtained, if it can be raised at all, by knowing who the donees are, and what they give in return.

The stock plan of course, tells its own story.

Yet it is a little singular that parties should prefer to *give away* one half as much as the stock in so valuable a work would cost them.

If this road proves as productive as we think it will, either as a local work, or as a connecting link between this city and any one or more of the great Eastern lines, or both, there is no doubt if it is properly managed, but that its stock will be worth nearly, or quite par. At any rate, it would sell in the open market any day after the business of the road was established, for more than fifty per cent. of its par value, and thus there would be something certainly, and prospectively a large per centum saved over and above the \$200,000 subsidy, and what we think of considerable importance, a local representation in the construction and operation of the road would be maintained, and local interests in that way somewhat protected.

There are good reasons why the people should weigh well the obligations they incur by becoming stockholders in a concern of this character. We intended to speak of these in this paper, but reserve the subject until the conclusions of the Supreme Court of Ohio upon some important point growing out of such relations. A case, involving many of the points arising out of the obligations of stockholders in an incorporated body under the laws of Ohio, has passed the subordinate courts and is now before the tribunal of last resort for a decision that shall be the law of the State upon such matters.

We shall be glad to learn that this work is successful. It is an important one, much needed, and talked of as long as our Southern road has been. The country through which it is to pass, is one of the most productive in the whole West; its citizens are numerous and wealthy, and they appreciate the value this road will be to them. They ought therefore, to respond quickly to the requirements that will give them this outlet, and the sooner realize its rich returns.

SPEED OF THE TELEGRAPH.—Professor Gould has found that the velocity of the electric waves through the Atlantic cables is from 7,000 to 8,000 miles per second, and depends somewhat upon whether the circuit is formed by the two cables or by one cable and the earth. Telegraph wires on poles in the air conduct the waves with a velocity a little more than double this; and it is remarked as a curious fact that the rapidity of the transmission increases with the distance between the wire and the earth, or the height of the support. Wires buried in the earth likewise transmit slowly, like submarine cables. Wires upon poles, but slightly elevated, likewise transmit signals with a velocity of 12,000 miles per second, while those at a considerable height give a velocity of 16,000 to 20,000 miles.

The population of Minnesota is estimated at 435,000—an increase of 263,000 since 1860. St. Paul has 20,045, and Minneapolis 13,014.

The Southern Railroad.

The *Commercial's* correspondent "Avery," writing upon the present way of reaching Chattanooga from Cincinnati, calls it "THE PUMPKIN VINE ROUTE," and gives the following graphic description of how and when the Cincinnati papers arrive in that city:

Up to about three weeks ago, they came in about 7 o'clock P. M. on the second day after publication. But this quick time over the great pumpkin vine route, via Louisville, (four hundred and forty miles in thirty-seven hours, or about twelve miles an hour,) was not to last, for about three weeks ago the *Commercial* ceased to put in an appearance on the second day after publication, and did not arrive until the third, being just forty-eight hours on the road. Watch its meanderings, gentle reader, or more particularly its stops. It leaves Cincinnati at 6 or 7 o'clock in the morning, and arrives in Louisville at 11 or 12. It then lies over from that time until half past 12 the next night, about thirteen hours. It then starts for Nashville, and arrives there at 9 o'clock the following morning, or about that time, and carries there until nearly 7 o'clock that night, when it takes a fresh start for Chattanooga, arriving here the next morning. "How is that for slow?"

Such was the rapid schedule that went into effect about three weeks ago. Captain Thatcher, the express agent at Nashville, was appealed to to do something in the premises, and he replied that owing to their being but twenty minutes "transfer time" at Nashville the papers had to lay over. But he said that he would give orders to have the papers transferred if it could possibly be done. He probably did so, for the *Commercial* now arrives here the second night after publication—that is, when the Louisville train is not behind at Nashville. But still there is a delay of thirteen hours at Louisville which is very provoking.

There is a remedy for all ills of the sort in a direct road from the Queen City to Chattanooga. The *Commercial* would then come through in about sixteen hours, or but little more than its present halt at Louisville. Everything else would come through too, in from a tenth to half the time it now takes it. The fact is, every branch of business and all kinds of business men, from newspaper down to peanut peddlers, from pig-ironists to milliners, demand the road. As business increases, this demand will increase, until it swells into an irresistible popular clamor at both ends of the line. "So clear the track, old Kentucky, or the track will clear you."

WONDERFUL BRIDGE.—The bridge now in process of erection across the Mississippi at St. Louis is one of the wonders of the age. It is to be a tubular, cast steel, arch bridge, supported by the abutments and two piers; the latter are 515 ft. apart, and 497 ft. each from its nearest abutment, making three spans of about 500 ft. each. Its greatest span is the same as that of the Kuilenberg Bridge over the Leek, an arm of the Rhine, in Holland. Telford's suspension bridge across the Menai Straits has a span of 570 ft. The Victoria tubular iron bridge of Montreal exceeds this greatly in length, being 6,600 ft. (1½ miles,) but it rests upon twenty-four piers, and its spans are mainly only 575 ft. The suspension bridge at Niagara spans 821 ft., and is 245 ft. above the water. The East River bridge will span 1,600 ft., at a height midway of 130 ft.

Small Gauge Railroads.

The ordinary railroad gauge (the width between the rails) in the United States and Great Britain, is that adified by Mr. Stephenson, and is four feet eight and a half inches. This was the gauge adopted for the Liverpool and Manchester Railway, being that which he had been accustomed to use in the construction of the tram roads of the colliery districts. The gauge of those roads had in turn been made to conform to the width of track of the vehicles in ordinary use, the object being only to make available on the improved roads the old stock of wagons.

Although Mr. Stephenson afterwards defended his gauge as being on the whole the most convenient for transportation of freights, and as affording sufficient width for the construction of an efficient locomotive, and his judgment has been confirmed by thirty years' experience, it did not seem to all engineers who were called to superintend the construction of the early railroads, that because immemorial custom had fixed the width of wagons at four feet eight and a half inches, it followed that that precise gauge was the most suitable for the building of engines and vehicles to be drawn by them on the newly devised railroads. So soon, therefore, as the railway system began to expand, the war of the gauges broke out.

Mr. I. K. Brunel, Engineer of the Great Western Railway was the foremost champion of the wide gauge, and built that line seven feet in width. Five feet was adopted for the Eastern Counties' Railway. Some Scottish lines were built six feet wide. On the Continent the usual gauge was four feet eight and a half inches, although the French lines are five feet eight and a half inches wide, and the Spanish lines were constructed on a gauge of five feet six inches, causing a break of gauge at the French frontier, commercially inconvenient, but considered politically desirable. In Ireland the gauge question was settled in a way so characteristic as to be worthy of mention.

The Ulster Company built twenty-five miles from Belfast towards Dublin, on a six feet two inch gauge, while the Drogheda company, which set out from Dublin to meet the Ulster line, commenced their works on a gauge of five feet two inches. When the Ulster company complained of the discrepancy, they were answered by the Irish Board of Works in 1843, "that though this looked a little awkward, yet, in fact, the two ends being completed, there was little chance of the intervening part ever being finished, and that, therefore, there was no harm done." Finally a mean of all opinions, five feet three inches, was adopted as the national gauge of Ireland; which had the recommendation, satisfactory to all in that land of confusion, that it differed from all the three gauges then in operation.

In the United States, the gauge controversy has borne fruit in the adoption of three principal widths of track—4 feet 8½ inches, the usual gauge in the north and west; 5 feet the width of the Southern roads, and also of the lines in Missouri, and 6 feet the wide gauge of the Erie railway and of the Ohio and Mississippi road.

As before said, thirty years' experience has justified Mr. Stephenson's opinion, and there are indications that the broader roads will, at no distant day, all be altered to conform to it. The work of his great opponent in England—the Great Western Railway—has already for the most part, been changed. A recent publi-

cation refers to it as follows: "The broad gauge, as regards the midland districts of England, is now a thing of the past, the Great Western Railway Company having ceased to run any broad gauge passenger trains between London and Birmingham, Wolverhampton and Liverpool. Already too, on the branch between Reading and Basingstoke, the third rail has been removed, thus converting that line from a 'mixed gauge' to a narrow gauge line. In addition to this, the whole of the broad gauge lines north of Oxford will immediately be taken up, removing in the midland counties the last trace of the system of one of the two great rival engineers, whose plans were so long hotly contested and celebrated as the 'battle of the gauges.'"

In this country public attention was attracted during the last year by the unexampled celerity with which the gauge of two hundred miles of line was changed from broad to narrow. A force of 1,400 men in twelve hours changed the gauge of the Missouri Pacific Railroad without interruption to the traffic. But assuming that the 4 feet 8½ inch gauge is likely to become the standard for the main railroad lines, it is not demonstrated that even this width is not much greater than is necessary for many works, particularly for branch lines of moderate length, whose utility is merely as feeders to a main line, and whose connection with the general railroad system of the country, is made only at one end. Indeed, the contrary of the proposition may be said to have been established, and it will perhaps surprise many readers to learn that railroads of 3½ feet, 3 feet, and even 2 feet gauge are in successful operation in Europe for the transportation both of freight and passengers.

A conviction that there are many districts in our country where small gauge lines can be built with great advantage, affording for a comparatively small cost in construction and working, a sufficient outlet for products, and all necessary facilities for passengers, has led the writer to collect some information on the subject which may be both interesting and useful to the public.

The Festiniog railway extends from Portmadoc in the county of Carnarvon, Wales, to the slate quarries in the parish of Festiniog, the distance of 13 miles. It was originally built as a tram road. The difference in level between the terminus at Portmadoc and the mountain terminus is 700 feet. The average grade being 1 in 92, or about 57 feet per mile, the trains descend by gravity.

Until 1863, the return trains were taken up by horses. The gauge of the road was two feet, and though the practicability of constructing locomotives on so small a scale had often been discussed, it was not till that year that an attempt was made to build them. Two were then put on the line, and in 1865 four were in daily use, and the line was regularly opened for passengers. It is difficult to realize even from figures, the actual dimensions of all parts of this minute railroad. The engines are in themselves curiosities. They have four coupled wheels two feet in diameter. The cylinders, lying but six inches above the rails, are eight inches in diameter, with twelve inch stroke. The engine, ready for a start, weighs seven and a half tons, carrying water in a tank surrounding the boiler. The average load taken up by these toy machines, over grades of 66 feet per mile, and curves of 150 feet radius, is 50 tons gross, at a speed of 10 miles per hour. Although the Board of Trade regulations limit the speed to 12 miles per hour, the engines have been run at a rate of thirty miles per hour with safety.

The passenger cars are 6 feet 6 inches high, 6 feet 3 inches wide, and 10 feet long, carrying ten passengers. The wheels, four in number, are 1 foot 6 inches in diameter, and 4 feet apart. The floors of the cars are only 9 inches above the rails. The locomotives cost about \$5,000 each, and the passenger cars \$500. The rail weighs 30 pounds per yard, and is laid on cross ties four feet in length.

The width of the works, cuttings, tunnels and viaducts is about 8 feet.

Near Cologne, is the Brœlthal Valley Railway 12½ miles in length, connecting the valley of the Brœl with the Sieg. The gauge is 2 feet 7 inches. The line is laid along the side of the common road, and has curves of 125 feet radius, and grades of 66 feet per mile. The engines, in working order, weigh 12½ tons, have 6 wheels, 2 feet 3 inches in diameter, cylinders, 10½ ins. in diameter, and 10 in. stroke, and are worked at a pressure of 90 pounds per square inch. The freight cars are 10 feet long, 4 feet 8 inches wide, weigh empty 2½ tons, carry 5 tons of freight, and cost about \$350 each.

The rails weigh 24 pounds per yard, and are laid on cross ties 4 feet 2 inches long.

At the Crewes works of the North-western Railway is a line of 1 foot 7 inches gauge, worked by engines of 1½ tons weight.

On the continent are the Mondalzac Railway of 2 feet 5 inches gauge, worked by engines of 9 tons, on a 33 pound rail; also the Antwerp and Gand line, gauge 3 feet 9 inches; the Commeny and Montlucon line, gauge 3 feet 3 inches; and at Tavaux-Pontsericourt, a line of 3 feet 3 inches gauge, worked by engines of 7½ tons on a 26 pound rail.

In Norway are laid nearly 200 miles of railroad on a gauge of 3 feet 6 inches, with engines of 17 tons, and a rail of 45 pounds per yard.

At the Thomas Iron works at Hokendaqua, Pa., engines have recently been put into a line of 2 feet 6 inch gauge, formerly worked by horse power.

These engines weigh a trifle over 8 tons with a tank full of water, and haul up a grade of 211 feet per mile, a gross load of 26 tons.

So far, then, all mechanical difficulties in the way of working railroads of a gauge even as narrow as 19 inches have been overcome, and it remains to examine what has been the success attending them as commercial enterprises and what may be their adaptability to the wants of our own country.

The immediate effect of the substitution of steam for horse-power, on the Festiniog Railway was a reduction of the working expenses 22 per cent. In 1868 the gross receipts were, in round numbers \$114,000; the expenses \$48,500, or 42 per cent. Of the expenses, however, nearly \$12,000 were for taxes, royalties and duties; the proper working expenses being only \$36,500, or 32 per cent. of gross income. Obviously the profits of working this road are greatly increased, from the fact that the greater part of the tonnage descends the line by gravity, but it is no less clear that the capacity of the small gauge for passing a large traffic without interruption is demonstrated.

The freight tonnage amounted to a million and a half (1,500,000) tons moved one mile; 2,500 passengers were carried over the road, and the gross receipts reached \$9,000 per mile of line.

The Brœlthal valley line is worked under conditions more nearly corresponding with those under which small gauge branches might be used in the United States.

One train per day runs each way over

the line, the average total weight being as follows:

Locomotive	12½ tons.
Cars	70 "
Freight	140 "

Total 222½ tons.

No passenger trains are run. The list of employees is very small, consisting of a manager, superintendent, assistant superintendent, bookkeeper, three track hands, one engineer, one fireman, one conductor, four train hands—or fourteen in all. The total tonnage during the last year, the reports of which are made public, was about 33,000; the receipts \$14,000; the expenses, including all repairs of track, \$6,650, or 47 per cent. The total cost of line, including rolling stock, was 111,500, and the dividend paid by the above business more than 6 per cent.

The three main objections to the small gauge then have been successfully answered by practical experiments.

It was said to be impossible to construct an effective locomotive for a track narrower than the standard 4 feet 8½ inch gauge. But we point to engines now at work, of various weights, from the one and a half ton engine on the nineteen inch gauge at Crewes to the "Little Wonder," a twenty ton engine on the twenty-three inch gauge at Festiniog, capable of hauling one hundred and fifty tons up a grade of sixty-six feet per mile, and which has been timed at thirty-five miles per hour.

It was said that the rolling stock was built on so small a scale that it would be as useless for transportation as a child's toy wagon, but the toy wagons carried in 1868, over the Festiniog railway 126,000 pounds of freight.

It was objected that the cost of working the small gauge would be nearly as much as for operating a road of the usual width; but experience proves that the expenses decrease nearly in proportion to the gauge quite as rapidly, including the interest on the difference in capital.

It is not proposed that a miniature railroad would generally answer the demands of our business, but only that in exceptional cases, where there is no through connection, but where a branch line is needed to convey to and feed a trunk line with the traffic of an isolated district, it will be wise to consider whether it is necessary to put the same capital per mile into the branch as into the trunk. Is it necessary, for instance, that the appliances for conveying the traffic of the Abbeville branch of the Greenville road should be as ample and costly as for the traffic of the New York Central?

An obvious objection will be raised: that of the cost of transferring freight at the junction with the main railroad system. Under the most unfavorable circumstances this would not exceed two cents per ton, and in many cases, by special appliances, might be reduced to little or nothing.

For instance, on the fertile plains of Illinois, the transportation of grain more than ten miles in wagons over, or rather through the bottomless mud of winter roads, is almost impossible.

But, these narrow lines may be extended into the remotest parts, conforming to the surface of the ground, costing little or nothing for grading, taking up grain, which may be shifted to the main line simply by running the small car above the car of the trunk road, and spouting the grain in. A branch line constructed on the 3 feet gauge, would not

cost two-thirds as much as one on the 4 feet 8½ inch gauge, perhaps not one-half. A thirty pound rail, a ten or twelve ton locomotive, cars of half the weight of those now used, bridges ten feet wide, tunnels, cuttings, embankments proportionately smaller, and the very great advantage gained by the use of sharp curves; all these points indicate the saving in first gauge of the small gauge.

This difference in original cost will be so large as to greatly stimulate the construction of branches. A traffic that won't pay interest on a capital of \$25,000 per mile, will justify building at a cost of \$10,000, and the smaller road will afford every necessary facility for intercourse. The introduction of the system will do for districts, what the general railroad system has done for the whole country—increase production, invite immigration, raise the value of land, and bring into close communion with their fellows, great numbers of communities destined otherwise to remain forever isolated.—*Republican*.

LOCOMOTIVES WITHOUT RAILS.—The British War Department has investigated a recent invention of a locomotive without rails, and it is reported in official reports far more useful than any horse. The Supt. of Machinery says he has come to the conclusion that the question of steam traction on common roads is now completely solved; that the application of the India-rubber is a perfect success; that it opens up an entirely new field, and that he looks upon this as a discovery rather than an invention.

In the course of experiments witnessed, the engine went up a labyrinth of zigzag courts, and it can describe a figure almost in a space of twice its length. The boiler employed is an independent invention adapted to the carriage. The chief peculiarity is the copper pot used for holding the water within the furnace, and is so contrived that if the boiler contains any water, the pot will have a full supply. This arrangement keeps the center of gravity low and allows the engine to run up hills of 1 in 10, or go along an angle of 30°. The wheel and its tire may be described as consisting of a broad iron tire with narrow flanges, upon which is placed a ring of vulcanized India-rubber; this ring is about 12 inches in width, and 5 inches in thickness, which thus surrounds the iron tire and is kept in its place by the flanges; then over the India-rubber there is placed an endless chain of steel plates, which is the portion of the wheel which comes in actual contact with the road, the reticulated chain being connected by a sort of vertebra at each side of the wheel. The India-rubber tire and this ring of steel plates have no rigid connection, but are at perfect liberty to move around as they please without consulting each other, or even without the concurrence of the inner ring of the wheel which they both inclose.

—By act of Congress passed last spring the tax of 2½ per cent. on the passenger receipts of railroads is abolished. This will be a relief of about \$4,000,000 per year on the railroads of the United States. The amount of this tax paid last year, reported by some of the Western roads was as follows: Chicago & Northwestern, about \$95,000; Chicago, Burlington & Quincy, \$42,958; Milwaukee & St. Paul, \$44,528; Chicago, Rock Island & Pacific, \$44,674; Chicago & Alton, \$39,789; Illinois Central, \$52,575.—*Railroad Gazette*.

CHEAP RIVER FREIGHTS.—The *St. Louis Democrat* advocates the construction of steamers for carrying freight exclusively, as the most efficacious method to recover the trade diverted from the Missouri and Mississippi rivers to the railroads, and gives a comparison of the cost of building one of the "river palaces" with the expense of the regular freight boat. The new steamer "Grand Tower," owned and just built by the Memphis Packet Company, is 268 feet long, 43 feet broad, and 7½ feet deep, and measures 1,400 tons. The cost was as follows: Hull \$28,700; cabin, completely fitted up, \$56,000; engines, \$25,000, making a total of \$109,700. The monthly wages of the crew, consisting of one captain, two pilots, two engineers, two strikers, three clerks, two mates, one carpenter, one watchman, and forty-five men, amount to \$4,200. The wages of each class of employees, in addition to board furnished, are as follows: Captain, \$200 a month, pilots, \$150; engineer, \$108; strikers, \$40; clerks, \$94; mate, \$93; carpenter, \$75; watchman, \$45, and deck hands \$45. The board is estimated at \$30 for the superior class, and \$25 for the common hands. Taking various other items of expenses, the entire charges, including interest, insurance, wear and tear upon a passenger steamer, it is estimated, amount to \$6,485 a month, or \$77,820 a year, taking no account of the expenses for provisions for the cabin, and for waiters, stewards and chambermaids necessary for a first class boat. On the other hand, it is calculated a freight boat could be built for \$38,700, the hull costing \$28,700, the cabin, with plain work, \$10,000, and the engines \$20,000. It is believed that the boat could be built for \$50,000, and upon this sum the charges for insurance and incidentals would be reduced one half, and the wear and tear of the fine work would form no item of expense. The crew, it is stated, might be reduced to one captain, two pilots, one clerk, one mate, two engineers, two strikers and six men; so that the expenses for navigating the steamer would only be \$1,610 a month, or \$19,320 a year. The fuel for these freight boats, it is argued, should be coal altogether. The hulls of the steamers, it is stated, could also be widened to sixty feet, and the tonnage thus increased to nearly double, without requiring any additional depth of water to float the boats.

GLUE WHICH WILL UNITE EVEN POLISHED STEEL.—A Turkish receipt for a cement used to fasten diamonds and other precious stuffs to metallic surfaces, and which is said to strongly unite even surfaces of polished steel, although exposed to moisture, is as follows: Dissolve five or six bits of gum mastic, each the size of a large pea, in as much spirits of wine as will suffice to render it liquid. In another vessel dissolve in as much isinglass, previously softened in water, as will make a two ounce phial of strong glue, adding two bits of gum ammoniac, which must be rubbed until dissolved. Then mix the whole with heat. Keep in a phial closely stopped. When it is to be used, set the phial in boiling water.

—The cement for stopping sand-holes in iron castings is made by mixing one part of flowers of sulphur and two parts of sal-ammoniac with eighty parts of coarsely powdered iron turnings. Sufficient water is used to make this compound into a thick paste; it is used as soon as it is made, and the holes are plugged tight with it. This cement ultimately becomes as hard as the metal itself.

Narrow Gauge Suspension Railways.

We have several times in previous issues, alluded to that system of railway construction embracing the use of a single elevated rail, or of two rails laid very close together, and of carriages running upon but suspended therefrom. The plan does away with the necessity of embankments, leveling, and the like, and has the merit of cheapness; but the comparative instability of the permanent way, the inconvenient form for passengers of the carriages, and the probability that locomotive propulsion will be found practically unsuited to it, are drawbacks that will limit its application to thinly settled and uneven districts. This is self-evident when we reflect that, in localities where the traffic is considerable, the greater durability of a ground track and the rapid and reliable transit arising from ordinary methods of propulsion are all essential; while in level regions, where the track may be laid upon a foundation of quickly shoveled soil, as in many parts of the further West, the narrow gauge two rail track now meeting with so much consideration from engineers will be far the best. Nevertheless, the cheap and even slovenly system to which we have alluded is worthy of attention in many places and for many purposes where the usual type of railway would, for economic or other reasons, be inadmissible. Its most obvious use will be found in the mining districts for the transport of ore from and supplies to the mines. It is for such, indeed, that it has met with its practical application abroad, as, for example, in Lancashire, England, where a line one mile long, and worked by a wire rope, is in actual operation. The permanent way is a continuous wooded beam, supported on a single line of posts, and situated at a height from the ground varying from three to twenty feet. Upon this are placed the carrying or bearing rails, eight inches apart. The beam has at its sides, and below the carrying rails, supplemental or guide rails. The carriage bodies are suspended from the axles of the wheels, which run upon the bearing rails and are furnished with horizontal wheels working in contact with the lateral guide rails, this last mentioned giving steadiness to the carriage when in motion by preventing, in a great degree, the tendency to oscillation; the same means also sufficing to insure the retention of the carrying wheels upon the rails, and consequently, this avoidance of accident. This line, only recently constructed, is expected to transport fifty thousand tons per annum, and the saving in cost of transport, as compared with that of ordinary methods, is estimated at sixpence, or, say twelve cents for the eight furlongs run. The cost of construction, aside from the stations and rolling stock, was five thousand dollars, or about one-third that of the more elaborate but similar elevated way suggested by Mr. Humphreys, an English inventor, who includes the cost of steel rails and crescented timber posts, and proposes propulsion by steam locomotives of peculiar construction. This last, is an item of some importance, for as yet no locomotives for this elevated narrow line system have been made, and, were their practicability experimentally shown, it would lead to greater faith in the permanent utility of such railways than at present obtains.—*Am. Artisan.*

—Iowa has now in operation about 600 more miles of railways than Wisconsin, and with the exception of Milwaukee, Wisconsin has no city as large as the largest city in Iowa—and the State of Iowa has 300,000 more population than the State of Wisconsin.

THE NARROW GAUGE RAILWAY.—It is very gratifying to perceive that the narrow gauge railway is growing in popularity because of its many merits. It is an important discovery in railroading. Without it, the system would be sadly imperfect. With it, the facilities of the iron track can be bestowed upon every community.

The cheapness with which the narrow track can be built and run, will no doubt make it a great economy in the purposes of travel and transportation. The uses of draught animals will be confined almost entirely to the farm. Every neighborhood will have its lateral narrow track, and will be able to forward its produce promptly, while its teams may be kept at work upon the crops, seeding and tilling and gathering. This will save both money and time to the farmer, and increase the steadiness and success of his effective force.

The power of the locomotive upon the narrow gauge is astonishing, and trains on such a track can ascend grades that would be impracticable upon the wide gauge railways. It is estimated that \$5,000 a mile will complete and equip a narrow track. When we take into consideration the speed and power of draft of the railway—the dispensing with the use of teams, and the gains from safe and rapid transportation—we see at once what an immense advantage there is for society in the narrow gauge iron track over the common roads.

It is surprising that this new railway has not before now been introduced into this country, which is generally either in the advance or very prompt to adopt whatever is useful that may be invented elsewhere. The two and the three feet gauge have been tried in England with wonderful success. Their introduction here would be an epoch in our commercial and social intercourse. It would be the perfecting of the railway as a substitute for the old mode of transportation and travel. It would be a relief to the horse, whose trials have been great in running in connection with the present lines, which leave such wide districts of country to make their way to the railway stations by horse power, in which mode of traveling the poor horse is too often made to pour out his life in an effort to make up for the time lost by men in dallying or sleeping.

Down in Charleston harbor, the Monitor Wrecking Company has already succeeded in rescuing about \$20,000 in value from the lobsterers and mermaids of that vicinity. Among the list of articles saved are a bell-metal propeller, a propeller shaft, a handed rifle gun, three very large anchors, a sternpost, capstan, a massive chain cable, 1,200 feet long, and a cook stove. The borer worms have proved stout enemies. Every plank and post of the wave-beaten hulks has been perforated and pulverized by them, but on the bell-metal, &c., and particularly on the cook stove, they gnawed their teeth in vain; and the wreckers looked on to them with great iron clamps, and raised them unharmed to the surface. But their feats are as nothing compared to what we are to behold at the raising of the Brother Jonathan, which is now sunk in the Mersey, off Liverpool. To this unlucky hark precisely three dozen balloons will be attached, lifting in the aggregate 680 tons. An apparatus will attach the balloons to the sunken vessel by means of massive iron bolts. Hydrogen gas will be generated in the balloons, and as they fill away and rise, the vessel will rise with them.

THE WAR AND THE IRON TRADE.—The *Iron and Coal Trade Review*, published in England, states in regard to the iron trade on the Continent and the extent to which it is affected by the war: "The Belgian iron trade is naturally a good deal deranged by the war, but the Government appears to be helping the iron masters by giving out extensive orders for rails on account of the State railways. We have no very definite information as to what number of men have been taken away from the works, but we understand that the production of iron in Belgium has certainly been very much diminished of late. In Germany and France, of course, the war has caused an almost complete suspension of manufacturing operations, and as many of the establishments were largely engaged in manufacturing rolling stock and material for the Russian and Austrian railways, it is highly probable that many of these contracts will come to this country to be executed, and that for a long time to come the production of iron in those two countries, and especially in Germany, will be very much diminished. Even should peace be very quickly restored, it will be impracticable for the iron masters of Prussia to get their works in full operation for a long time to come, and England will necessarily have to supply the finished iron which would otherwise be produced on the continent.

TRAMWAYS.—A tramway has been invented which consists of a single iron or steel rail of any section, ballasted up to the level of the road. Upon this single rail tramway vehicles of any construction, and driven by any suitable means, may be run, but in order that the greater part of the weight of the vehicles may be carried by the rail, one or more double flanged wheels are fixed on the center line of the vehicle. Each of these wheels work on a swivel, attached to a screw, in order to raise or lower the frame work or body of the vehicles above the surface of the ordinary road on either side, so that the whole or nearly all of the weight of the vehicles and their contents would rest on the rail, whilst their balance would be maintained on either side by the ordinary wheels of the vehicles. The center double flanged wheel or wheels are acted upon by springs on either side, in order to prevent jarring and jolting, and to give them a fair amount of play to suit the irregularities of the road, which would naturally affect the ordinary wheels of the vehicles.

USE OF SOLUBLE GLASS IN PAINTING.—Our exchanges still continue to suggest new applications of water glass in the arts; but especially in painting, where it appears to furnish a means of applying certain colors to fresh wood or clean iron in a most efficient manner, and at a very slight cost compared with oil. It can also be used advantageously for painting houses, basket ware, decorations for theatres, &c., and is especially suitable in the latter case, as it renders wood incombustible to a certain extent, instead of increasing the danger from fire, as with oil paint. Care, must of course be taken, to use only such mineral colors as are not decomposed by the glass, such as ultra-marine, chrome green, Nuremberg green, yellow and red earth ochre, green earth, terra de sienna, &c. In coating paper with this paint a little glycerin may be added to prevent its breaking. Coralline, Ponceau and Vesuvine have also been used to advantage in connection with soluble glass.—*American Engineer.*

ELECTRIC BUOY.—An electric marine buoy, the invention of M. E. DUCHEMIN, was exhibited at Cherbourg some time since by order of the Minister to the Marine. The electricity was produced by the constantly renewed action of the seawater on zinc, but the inventor has since carried on a series of experiments in order to ascertain if an increase of intensity could not be obtained as in ordinary batteries by means of certain chemical substances held in suspension around the zinc or charcoal element. The new battery resulting from the experiments, consists of a porous vase fixed on a wooden buoy or floater. The vase is surrounded by a thick zinc cylinder, pierced with holes, the wire of which represents the negative pole. Within the porous vase is placed a slab of gas-retort charcoal, to which is affixed the conductor of the positive pole: the charcoal is surrounded by pieces of coke and perchloride of iron. The vase is carefully closed, and the battery when plunged in the sea immediately gives forth large quantities of electricity. A commission consisting of M. Becquerel, General Morel, and Marshal Vaillant, has been appointed to examine this marine electric apparatus.

The superiority of iron over stone as a material for bridges may be best explained by a brief reference to the cost of some of the existing structures in London. For instance, Waterloo and London bridge are of stone—the former cost £10 per square foot, and the latter £11 6s; while the beautiful bridge built by Mr. Page, at Westminster, cost only £3 5s. per foot. The following are the total sums which the chief Thames bridges have cost; Waterloo, £579,915; London, £542,150; Southwark, £384,000; Hungerford, £98,660; Old Westminster, £280,000; Vauxhall, £300,000; and the cost of the new bridge at Blackfriars is about £320,000.

—A car built on a new principle by J. W. Street & Co., for the transportation of cattle, is described by the *Chicago Railway Review*. The length of the car is 36 feet, breadth 8½ feet, good height, and well ventilated. The inside has adjustable stalls, so arranged as to accommodate cattle of any size—each animal having its own stall. The obvious advantage is that cattle can be run to any market without having to stop for rest and feed, as each animal has its own feed and water trough, the feed being let down through a funnel from the top, and water being supplied from a small tank attached to the end of the car. The first car of this kind, loaded with 16 head of cattle, was sent recently over the Pittsburg and Fort Wayne road to Pittsburg.

—In Europe they are building two story railroad cars.

—Fifteen leading Western railroads report their gross earnings for six months at \$50,787,366, as against \$48,735,475 for the corresponding period of time in 1869. But this increase of nearly \$2,000,000 is obtained by the extraordinary gain by the Central Pacific Railroad, which shows the enormous increase of about 50 per cent. compared with last year, the actual figures this year being \$6,142,707 against \$4,086,591 in 1869. There has been a decrease on some of the grain carrying roads for the month of September, because the crops have not come forward rapidly.

Of James Fisk, Jr., an appreciative correspondent of an Eastern journal writes: "It may be said of Fisk, as remarked of Gen. Butler, that while some might think him a knave, no one would call him a fool. He has undertaken some of the most extensive speculations ever known, and his ability and courage have been shown, not only where successful, but also where he failed. It is a favorite idea of his that large transactions can be carried on as easily as small ones, if a person has only sufficient nerve. Few persons realize the vast power at his command, or the tremendous extent of his operations. The *Nation* well said that Gould and Fisk had a rope around the neck of every business man in the country. They have over 1300 locomotives, 50 or more steam vessels of all kinds, 30,000 employees, with fifty millions capital to back them. In addition to this the united strength of the Tammany Ring, which controls the judiciary, city government, and State legislature, is at their command. Fisk, it is said, aspires to be a veritable 'prince' in power as well as name—and there does not seem to be anything to prevent his being so. Fisk has done not a little good in setting an example of how the public may be benefited, by consulting their comfort, etc., in steamboats, cars, and other places, and if he will only keep adding to the improvements he has effected in this way, he may be looked on in the light of a public benefactor."

CANAL FROM THE MISSISSIPPI TO LAKE BORGNE.—Work is actively progressing on the new canal which is to connect the Mississippi at New Orleans with Lake Borgne and the Gulf of Mexico; and it is stated that the enterprise will be completed by the latter part of next winter. The canal will be 70 feet wide and 12 feet deep, and its lake terminus is to be at Fort Dupries, seven miles distant from the Mississippi. About 1,000 feet from that river is to be a lock, 500 feet long by 147 feet wide, and 18 feet deep. For vessels drawing nearly 12 feet, the distance between New Orleans and the deep waters of the Gulf will be shortened about 70 miles. Small craft from New Orleans for Mobile and Florida ports will save 15 miles in distance, and the transhipment of many bulky articles will be obviated. The transfer of grain in barges to ships at Ship Island will be facilitated, and it is claimed that the cost of grain transportation will be diminished 5 cents per bushel.—*Monthly Report of Agriculture.*

The tin roof of the Westbrook, Maine, Seminary, boarding-house, owing to its greater condensing power than wood, helped materially in keeping up a supply of water during the drought. Frequently after a night during which not a drop of rain fell, it would be found that a considerable quantity of water had run into the cistern, and during the continuance of the dry time, probably bogsheads of water were caught in this way.

In ten years—between 1860 and 1870—the insurance as a business, has increased in Massachusetts from \$151,000,000 to \$2,000,000,000, with a net reserve, increased from \$13,000,000 to \$200,000,000. In 1869 outside companies insured through their agents, nearly \$121,000,000, collecting \$7,000,000 in premiums, their increase being double over that of the previous year.

A barrel of flour weighs 196 pounds, a barrel of pork 200 pounds, a barrel of rice 600 pounds, a keg of powder 25 pounds, a firkin of butter 56 pounds, a tub of butter 84 pounds. The following are sold by weight per bushel: Wheat, beans and clover seed, 60 pounds; corn, rye and flax seed, 55 pounds; buckwheat, 52 pounds; barley, 48 pounds; coarse salt, 85 pounds.

RAILROAD GAZETTE.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27

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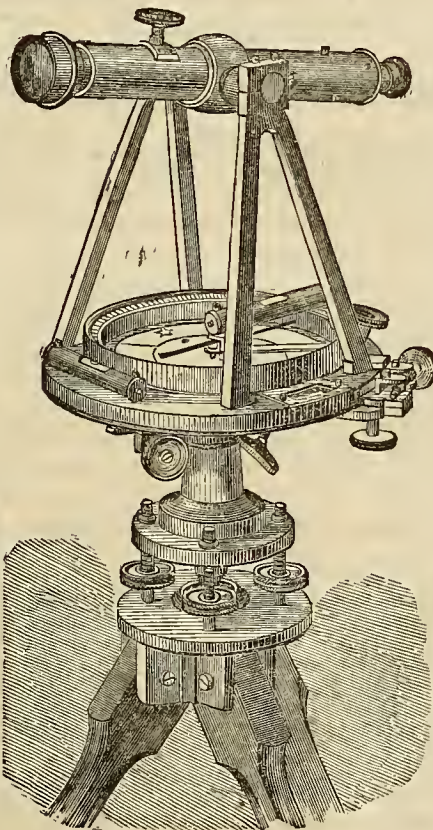
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2-12-9, 52

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(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Breakfast); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

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North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 am
St. Louis and Springfield Express....	8.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.70 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE
Eastern Express (Erie Railway).	7:40 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:40 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

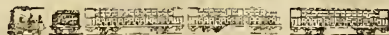
For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth Streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

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LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

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Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Esion with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

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Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Manach Chnck, Williamsport, Wilkesbarre, Mahoney City, Tuckhamneck &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Manach Chnck, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Manach Chnck and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Manach Chnck, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:40, 2:40, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent

H. P. BALDWIN, Gen. Pass. Ag't.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, - THURSDAY, NOVEMBER, 3, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

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CINCINNATI.

Its Growth, Manufactures, and Future.

In looking over the State of Ohio, a close observer will see, without any aid from the census, that the whole growth of the State has been in *four localities*; and that these localities, when added together, do not make one-third the surface of the State. The other two-thirds of its surface, which is mainly the whole central part of the State, has grown very little, if at all. If we look into the thrifty localities, we find them to be the region round Cleveland; the iron region of the south-east; the vicinity of Cincinnati, and the region round Toledo. The last we would not consider, for, in the north-west of the State, the lands were wild and the settlements few, so that region grew like a new State or Territory. But why did the other three grow? Looking into the facts just as we see them, and as they are testified to by statistics, we find they all grow from one cause—*manufactures*—and when we look into that, we find it to be simply the *development of coal and iron*. Look at this growth a little. Take Cleveland. Some twenty years ago, the peculiar coal called the "Brier Hill coal," was discovered, or at least applied to its peculiar use—smelting. This coal was on the upper edge of Mahoning county, near Youngstown, Capitalists then made a railroad to it; and the coal was brought to Cleveland, which thenceforward became a coal depot. Then began iron works and iron manufactures on a large scale

at Cleveland. About the same time, the remarkable iron and copper of Lake Superior began to be developed, and Cleveland was the best place to manufacture it, because there was no intermediate place which had began to manufacture, or was then fit for it; while on the other hand, from its mines to Cleveland was a water carriage comparatively cheap. Thus Cleveland has become a great manufacturing place, and enjoys also the advantages of lake commerce. Thus Cleveland has increased 100 per cent. But this is not all; Akron, Youngstown, Canton, Massillon, and the whole region round about her sprung into activity. So much for that region. If we go into south-eastern Ohio, we shall find not near so much growth; but still a healthy activity, Meigs, Gallia, Vinton, Jackson, Lawrence, and Hocking, are all growing. They are growing from the development of its iron mines. We come lastly to Cincinnati, and find that growing. As near as we can find, the present population of Cincinnati is 220,000. Taken with the censuses of the last forty years the growth stands thus:

1830	46,310	
1850	115,436	Increase 150 per cent.
1860	161,044	" 40 "
1870	220,000	" 35 "

This is a healthy growth, but it is evidently not a very rapid one in the last twenty years, nothing like that of Cleveland, Chicago, or St. Louis. But notwithstanding this, it is a good growth, and will give the city 400,000 people in 1890; but St. Louis will then have 800,000. Why not Cincinnati? Now what we have to say is, that whether Cincinnati grows hereafter as it did for many years will *depend wholly on herself*. We have written of several things Cincinnati ought to do, but these things she must do herself. She can not ever depend on votes, a corporate power or corporate strength. *Her citizens*, of talent and wealth, must wake up and act, as they did in former days. Nothing else will do. Now let us see what they ought to do. The recent statistics taken by the Board of Trade, compared with the census recently taken shows a most extraordinary fact; that while the growth of *population* has been only 35 per cent. in the last ten years, the growth of manufactures has been 100 per cent. In other words, the manufactures have actually *forced* the growth of the city, instead of the people forcing the manufactures. If the manufactures had not increased, we believe the city would have been less populous to-day than in 1860. In other words trade or commerce appear to have done nothing for the city. But before commenting on this, let us see the growth of manufactures:

Take a single fact and reflect upon it. The *value of products* in Cincinnati in 1870 is *equal to that of the whole State of Ohio in 1860*! The value of products of Cincinnati in 1870 is \$120,000,000, and that is just the value of the whole industrial products of the State in 1860. Take that fact and think upon it. Recollect that in that time (ten years) we

have had a great war, which was quite as disastrous to Cincinnati, for a time, as to any other place. Industry was deranged, machinery stopped, and men thrown out of employment. Yet see the recuperative power of this city, and its immense strides at the present moment. It may be worth while to look back and see how Cincinnati has moved on in its industrial career. Take the figures for the county (for we have them complete, and the proportion out of Cincinnati is small):

	Value of Products.
In 1840	\$ 17,500,000
In 1850	25,000,000
In 1860	46,995,000
In 1870	120,000,000

The first three statements are taken from the United States censuses, which, however, excluded some merely mechanical employments, included in the last. But taking either statement, it is plain that the industry of Cincinnati has doubled in the last ten years.

Then we see, that Cincinnati manifests a tremendous industrial activity. On what does that depend? Precisely the same thing which is manifested in Cleveland. It is coal and iron that moves the machinery of Cincinnati. This coal and iron is found in illimitable quantities from 100 to 150 miles from Cincinnati. To manufacture here, therefore, is an easy thing; and if *markets* can be found the increase of manufactures will be illimitable. But here comes the one great point of the case. Can markets be found for all that Cincinnati can manufacture? Let us look at the course of trade here. Cincinnati merchants thought that if they got railroads into Indiana, and north to Toledo, and west to Fort Wayne, they would increase their trade. The fact is, they hardly keep it. Why? Because north, east and west they are met with rivals who can sell goods as cheap as they do. St. Louis, Chicago, Cleveland all come in to share trade with Cincinnati, and all that railroads on the north side of the Ohio have done for them is to enable them to hold their own. The same would be the case with manufactures, if it were not that manufactures depend on peculiar materials, and peculiar elements and advantages. Still the markets for our manufactures do not increase to the north and east of us. We come back then to the "old story." On the north side of the Ohio, Cincinnati can get but a little way beyond what she has done. But on the *south side* of the Ohio she can *command the whole market for manufactures*. Nobody can compete with her there without coming *through Cincinnati*. Local manufactures will spring up in the south, but they will not injure the great central market; rather the contrary. As long as there is a great negro population at the South, and that will be for another generation, the South will not manufacture extensively. And thus we have arrived at the *moral of our article*. If Kentucky will not grant a charter or rather right of way to the Cincinnati Southern road, and we have no reason to believe she will, then advantage

should betaken of the "Kentucky Central road," or of charters, of which there are many, to make the "Southern road" by individual subscription. Do you say the citizens of Cincinnati will not do it? Very well. Then they have decided upon their own destiny, and let it be so. Nobody can force good fortune on those who do not want it. We say that Cincinnati can be the greatest city of the West; but we also say that if she refuses such a destiny, nobody can force her to accept it, and nobody ought to.

New Railroad Movements.

Col. Trimble, President of the Hillsboro and Point Pleasant Railroad, finding after repeated efforts, that there is no chance of obtaining aid from the denizens of the Queen city to bring his road there, has turned his attention towards Chicago, and called the good people of Dayton together one night last week, to consider wherein the interests of that place will be served, by the construction of the road to that point on its way to Chicago.

The Daytonians, although in love with their condition, and hitherto obtuse to all appeals made to arouse them to action, were somewhat excited by Col. Trimble's proposition, and turned out, so we are told, reasonably well at the new rooms of their recently organized Board of Trade, whereupon Col. Trimble addressed them upon the merits and progress of his work, and P. P. Lowe, Joseph Clegg, R. W. Steele, and other prominent citizens of Dayton expressed themselves upon this enterprise and such further proceedings were had as is necessary to raise \$700 to defray the expenses of a survey from Hillsboro to Dayton.

This is encouraging. We hope the money will be easily raised, that the surveys will go on, and show how direct such a line will be, and that the grades will be easy, the curvature gentle, the cost comparatively light, and the business enormously large and productive.

There is one thing certain, if Dayton is to prosper and grow as she ought to by reason of her fine locality, she must have a direct connection with the great coal fields that lie within her easy reach, and she must have such an interest in this means of connection as will give her a reasonable influence in its management, and not allow the work created in part by her means to be used in discriminating against her, and in favor of rival points or individual interests.

The project is a good one for Dayton as a coal supplying road, to say nothing about the advantages it offers as a new line to the sea, and the efforts of Col. Trimble ought to be seconded strongly, and the people of Dayton and all those along the line of the road, who will be the beneficiaries of this work, ought to work hard and advance money liber-

ally to secure as quick as possible this splendid enterprise

Mere speechifying and resolving won't do. The "sinews of war" are needed, and a long pull, and a strong pull, and a pull all together will get them.

The Cincinnati & Springfield Short Line.

WHERE THE MONEY IS TO COME FROM.

The parties who are soliciting local aid in behalf of this work, state at the public meetings held along the line, that this has always been a favorite route with the Cleveland and Columbus Railroad Company, to reach Cincinnati, and that now the following strong parties had combined to construct it, and had agreed to contribute the sums hereto annexed:

New York Central, Southern Michigan, & Cleveland & Columbus.	\$1,500,000
R. M. Shoemaker.....	300,000
Total.....	\$1,800,000

But it seems \$252,000 more are wanted, and these "strong parties" concluded at a meeting recently had in New York city, that if the citizens along the line of this road, would just raise these \$252,000 and give it to *somebody*, not yet named or pointed out to the contributors, the road should be built. Otherwise, we suppose of course, these "strong parties" will keep their \$1,800,000, and this "favorite route"—will not be built, and the New York Central, and Michigan Southern, and Cincinnati, Cleveland and Columbus Railway Companies will continue to languish for the trade of our city. It's a great pity these companies have not just a little more money, so as to make sure the building of the road, though the local contributions should not reach the required sum. It might be well enough, however, to commence the work with the \$1,800,000 already raised. This is about \$30,000 per mile, and perhaps under judicious management, the work can be done for that sum—we have heard responsible and experienced contractors say it could. No time would then be lost, and all the expense and excitements of a local subscription canvass would be saved, and the friction that is proposed between Reading and Lockland, and Sharon and somebody's farm, and Xenia and the west part of Greene county, with all the fatal and unforeseen consequences that may arise from such rubbings, will be avoided. besides it would add greatly to the public confidence that these "strong parties" are in earnest, and if they were really about to fail in this great undertaking for the want of \$252,000, we are sure the citizens would rush to their rescue, and the sum would be raised quicker and cheaper than as now proposed. And as for the location of the line, the company better place it where it ought to be, and

not allow it to be dragged to any man's door and around any person's farm who will pay a little something to this building fund. Great injury has been done to good projects by such detours from proper courses. We hope this company will learn something from the experience of the country, and not fall into such fatal errors.

Loveland & Hamilton Railroad.

A correspondent of the Cincinnati *Commercial* says:

It is understood to be a fact that the Baltimore and Ohio Railroad Company has pledged to the citizens of Hamilton pecuniary aid and influence to a company to be formed for the early completion of this link connecting the Marietta and Junction Railroads.

The Baltimore and Ohio Railroad is acting with its usual wisdom and good judgment in this movement, which will save over twenty-two miles in distance between Loveland and Indianapolis, and obviate the necessity of shifting trains in passing through Cincinnati, which is equal to five miles of open track. On completion of this short link, the Baltimore and Ohio Railroad must command all the through traffic centering at Indianapolis for Baltimore, and the Cincinnati and Indianapolis Junction road, which has always felt the want of a direct Eastern outlet, will be immediately benefited, and instead of holding an inferior position, will at once become a great thorough line.

The town of Hamilton and her adjoining manufacturing interests would be largely benefited. The advance in real estate alone would more than pay the cost of the road.

It is proposed to organize a company with a capital stock of \$250,000, and to issue a mortgage bond for an equal sum, bearing seven per cent. interest, which will furnish ample means to complete the road. The annual interest on the stock and bonds, (\$500,000,) at seven per cent., amounts to \$35,000. There is no doubt but that either of the connecting lines would readily agree to lease the road and assume this amount of payment; but a much larger income might be realized by renting the use of the track for a reasonable toll on the freight and passenger list.

In view of these facts the track should be completed as soon as possible, and trains should be passing over the line by the 1st of next July.

Since the above was written, a company has been organized to construct this road, and we understand the work will be commenced at once.

RESULTS OF ONE DISCOVERY.—The discovery of coal oil not only introduced a new business, which has rapidly grown to large proportions, but has given rise to more than a thousand inventions, over three hundred of which have been patented for lamps to burn it in. Many new and useful chemicals have also been produced from it. Cochineal, which was formerly employed in dyeing the various shades of crimson and scarlet, is now almost superseded by aniline, a new product from coal oil, which gives every shade of purple, every variety of blue, and all the gradations of scarlet and crimson.—*Exchange.*

The Atlantic and Great Western Railway to be Reorganized.

The London Railway News, of September 24, gives the particulars of the English plan for the foreclosure and reorganization of the Atlantic & Great Western Railway Company, and announces the success of the preliminary steps in the undertaking. The News says:

On Saturday last, when the time fixed for receiving the bonds and debentures expired, Messrs. Bischoffsheim had in their actual possession about £7,000,000 of the securities of the company, and assents to the scheme, on the part of persons who had not deposited, of upward of £1,000,000 sterling. The whole amount of securities of the company outstanding, including the over due coupons, according to the official scheme for the reorganization of the company, is \$58,375,910, or £11,674,582. Messrs. Bischoffsheim and Goldschmidt possessed therefore about four-fifths of the whole of the securities of the company. A small section holding a majority of the first Ohio bonds, about \$2,000,000, and held almost exclusively in Holland, have hitherto opposed the plan, and proposed a counter scheme, by which the consolidated bondholders were to be cut down by 50 per cent., instead of receiving payment in full as contemplated by the plan which has now received the sanction of the majority of holders of other securities. The representatives of this party in America, finding that holders of bonds preferred payment in full to repudiation, and that all their attempts, aided by the Erie Directors, failed to secure assent to the principles of confiscation which they proposed, have now withdrawn their opposition, and a large portion of the certificates issued by the Dutch committee, as well as of the first Ohio bonds, have already been sent in for conversion.

We may, therefore, fairly congratulate the bond and debenture holders upon the prospect of a speedy resumption of those coupon payments of which for nearly four years they have been unduly and vexatiously deprived.

All the deep laid schemes of the Erie and adjoining railways to bring discredit upon the undertaking, to annoy and disgust the bondholders, and induce them to throw away their property, have been frustrated, and the railway will now in a few months pass into the absolute possession and control of those who have provided the means for its construction and maintenance. When reorganized, as it will be before the close of the present year, it will have at its head one of the best and most experienced railway men in America, viz.: General McClellan, and he will be assisted by a board in whom the most implicit confidence may be placed.

At the present time the line is worked by the Erie under temporary arrangements until the foreclosure is obtained, and they pay to the receiver of the line the paltry sum of \$100,000 per month, alleging, what is palpably incorrect, that this sum represents the net earnings of 507 miles of railway running through the best portions of the three prosperous States of New York, Pennsylvania and Ohio, and forming a most important link in the communication with the West. This ridiculously small sum is still, however, sufficient to pay the 7 per cent. interest on the whole of the first and second mortgage bonds of the company.

No returns deserving of the slightest confidence have been received from the Erie Company during the three years that they

have usurped the control of the undertaking. From all the accounts which reach us, the road is now in excellent condition, and the traffic which is now and has for some time past been offering, far exceeds the crooked and unsatisfactory returns made by the Erie Company. There is one fact which, even upon the showing of the Erie Company itself, affords evidence that the earnings are greatly understated. The Atlantic & Great Western, for instance, owns 3,631 cars, and, according to the figures given in the last return, they earned on an average only \$1,487, while on the Ohio & Mississippi, which is a continuation of this road beyond Cincinnati, the average earnings per car were \$2,602; on the Cincinnati, Hamilton & Dayton, which is a continuation of the Atlantic & Great Western from Dayton to the Ohio, the average earnings were \$2,759.

The character of the traffic is absolutely the same upon the three roads, and yet we are asked to believe that the cars on the Atlantic & Great Western earn \$1,200 to \$1,300 respectively, less than upon their neighbor's roads. Assuming the earnings per year to be the same as the average of these two lines, the gross earnings of the Atlantic & Great Western would exceed the amount now actually paid over by the Erie by more than \$4,000,000, which amount would alone enable the company to pay within a fraction of 7 per cent. upon all the first, second and third mortgages, as well as upon the whole of the share capital of the company. We have examined the figures very carefully, and the result has convinced us that the comparison with the two roads mentioned is one which may very fairly be made, and that the details given fully justify us in assuming that under an honest and efficient system of administration the carrying capacity and the supply of traffic of the Atlantic & Great Western are fully equal to the payment of 7 per cent. upon the whole of the bonded debt of the company, with a very large margin for the preference and ordinary shares of the company.

☛ The United States pensioners on the rolls on June 30, 1870, amounted in number to 198,686, of which 87,521 were invalid army and navy pensioners, and 111,165 were widows, orphans and dependent relatives. The total amount paid during the fiscal year ending June 30, 1870, including the expenses of the revenue agencies, was \$27,780,812, being \$642,072 less than during the year ending June 30, 1869, although there were 10,723 more pensioners on the rolls. There are now on the pension rolls 12,086 widows and children of soldiers who were in the war prior to 1861, a decrease of 12. On June 30, 1870, there were upon the army rolls 86,187 invalid pensioners, whose yearly pensions amounted to \$7,655,749, and 109,552 widows, orphans and dependents of soldiers, whose yearly pensions were \$14,224,644, making a total aggregate of army pensioners of 195,739, receiving annual pensions of \$21,880,414. There were also 1,334 invalid naval pensioners on the rolls, and 1,613 naval widows, orphans, and dependent relatives. These numbers added together give the 198,686 persons dependent on the United States.

☛ An acre contains 4,840 square yards. A square mile contains 640 acres. A mile is 5,280 feet, or 1,760 yards in length. A league is 3 miles. A fathom is 6 feet. A hand (horse measure) is 4 inches. A palm is 3 inches. A space is 3 feet.

The Gauge for "The Railways of the Future."

BY R. F. FAIRLIE, ESQ.

[Read before the British Association, at Liverpool, Ses. 1870.]

Apart from the important question of economy, the carrying capacity of gauges of less than 4ft. 8½ inches has never yet been considered in its true light. It has been hastily assumed that a line of narrower gauge than this would be very limited, both in its carrying power and also as regards the speed at which trains could be run; and it has been argued that the saving in cost would be too small to render it desirable to make a change. It is not my purpose to advocate such a change in Great Britain, where a 4ft. 8½ in. gauge is actually established and at work, and where it affords the necessary facilities for the speed of sixty or seventy miles per hour that are actually run over it; but only to take the conditions of English railway traffic as an illustration of my general arguments. It is admitted that the proportion of non-paying to paying weight in passenger trains is as much as 29 to 1, and in goods trains, exclusive of minerals, as much as 7 to 1. This terrible disproportion is probably due to the system of management pursued; but in a far greater degree to the gauge. The dead weight of trains conveying either passengers or goods is in direct proportion to the gauge on which they run; or in other words, the proportion of nonpaying to paying weight (as far as this is independent of management) is increased exactly as the rails are farther apart, because a ton of materials disposed upon a narrow gauge is stronger, as regards its carrying power than the same weight when spread out over a wider basis. In proof of this proposition I need only cite the case of the Festiniog railway, with its gauge of 1ft. 11½ in. The wagons used upon it for carrying timber weigh only 12 cwt., and they frequently carry a load of over 3½ tons at a speed of twelve miles an hour. In other words, these wagons carry as much as six times their own weight, whilst the best wagons on the ordinary English narrow gauge do not carry as much as twice their own weight. The good management of the London & North-western Railway is so universally admitted that it will seem almost presumptuous to select this line as an illustration of the faults of the existing system. I have, however, selected it, because its management is such that its shortcomings must be wholly due to its construction; and I shall proceed to show that if its gauge were 3ft. instead of 4ft. 8½ in., its goods traffic could be hauled at half the present cost, with half the present motive power, and in such a way as to reduce the present tonnage over the road by one half, and to remove the necessity for the heavy expense that is now being incurred in the construction of a third line of rails. I am perfectly prepared for the incredulity with which these statements will at first be received; but I shall prove their correctness by figures that can not err.

The goods and mineral traffic on the London & North-western Railway for a single year amount to about fifteen millions of tons. I will assume that five out of these fifteen million tons are minerals, consisting chiefly of coal; and I will deal only with the ten million tons of goods which are left as the net residue of the year's carrying. It has been proved that the proportion of non-paying to paying weight is about seven tons to one ton;

and this would give seventy million tons of rolling weight employed to carry the ten million tons of paying load. In order to avoid all risk of exaggeration, I will assume the dead weight to be only as four tons to one; which reduces from seventy to forty million tons the weight of the wagons employed to carry the ten million tons of paying load. The whole gross weight hauled by the locomotives will then be fifty millions of tons, at an average speed of twenty-five miles an hour. The earnings for the goods traffic on this line are 6s. 3d. per train mile; which, at an average rate all round of 1½d. per ton per mile, would give about fifty tons as the paying weight, and 255 tons as the gross weight hauled per train mile. Dividing this 255 tons into the fifty millions gives 196,089 trains; which being divided by the 313 working days of a year, gives 626 merchandise trains, over all parts of the North-western Railway, in the twenty-four hours. The company's balance sheet shows that each net ton produces about 4s. 8d. (including minerals, but as the net amount earned per train mile in the merchandise and mineral traffic may be taken as averaging nearly the same, this does not vitiate the argument) which, at 1½d. per ton per mile, makes the average distance traversed by each ton to be about thirty-eight miles; so that, as each ton of the total weight hauled runs thirty-eight miles, and the entire length of line worked is 1,432 miles, it follows that there must be on an average thirty-seven merchandise trains distributed over the total length. This number, divided into the total number of trains per day of twenty-four hours, gives an average of over seventeen trains per day running on each mile of the line. My object in bringing the figures to this point is to show that, although at first sight the number 626 trains per day, looks large, yet, when divided over the entire line, it is comparatively small. Having arrived at this conclusion, we are in a position to see how it would affect the question if the gauge of the line were 3ft. instead of 4ft. 8½ in. In the first place, the same or a greater speed could be maintained, say up to thirty-five or forty miles an hour. I mention the speed here because I am dealing with goods trains only. Of course when passenger trains are considered, the element of speed tells largely in favor of the broad (i. e., 4ft. 8½ in.) gauge; but this has been already admitted. My argument is only intended to show what a 3ft. gauge is capable of accomplishing in the way of duty, up to a speed of forty miles an hour; a speed which on such a gauge can only be obtained by the employment of the double bogie engines.

The speeds in each case being therefore equal, the next point to examine is the result of carrying on the narrow gauge. The proportion of non-paying to paying load has been taken at four to one on the broad gauge, although it has proved largely in excess of this. The wagons employed average four tons in weight, so that on this reckoning each wagon carries one ton for every mile it runs. It would be well to remember here that I am dealing with things as they are, not as they might be. The wagons for a line of 3 feet gauge weigh each one ton, and carry a maximum load of three tons. Supposing that the same number of wagons and trains were run on the narrow gauge as on the broad, it follows that the average one ton of merchandise now carried would easily be taken in a wagon weighing one ton instead of four tons, and that the gross load passing over the line for one year would be only twenty millions of tons instead of fifty millions; whilst the same

amount of paying weight would be carried in either case. That is, the small wagons, which are capable of carrying three times the weight of goods now actually carried in a four ton wagon, would only have to carry one-third of that quantity, and would produce the same paying load as the heavier wagons; thus, instead of fifty million tons passing over the line there would only be twenty millions; and, as the haulage cost is precisely the same, whether the tons hauled consist of paying or non-paying load, it follows that this expense would be reduced to two-fifths of what it now is. We must also consider the enormous saving to the permanent way, which would have to bear the friction and weight of only twenty millions of tons in the place of fifty millions. If we assume the same number of trains to run per day, the weight of each would be reduced from 255 tons to 102 tons; or, if the same gross weight of train were employed, the number of trains per day would be reduced from 625 to 250. If there should be sufficient traffic to load the narrow gauge wagons in such a way as to require the same number and weight of trains that are now worked, the result would be that, without increasing by one penny the cost of haulage and of the permanent way expenses, the 3 feet gauge would carry a paying load of twenty-five millions of tons, as against the ten millions now carried. Here then, we have established the fact that, so far as capacity goes, the narrow gauge is superior to the broad one. The former can produce twenty-five millions net out of a gross tonnage of fifty millions; whilst the latter, to produce the same result, if continued to be worked as it now is, would require that one hundred and twenty-five million tons should be hauled, and that an increased cost in the same proportion of one hundred and twenty-five millions to fifty millions.

It may occur to some of my readers to ask at this stage whether locomotives can be built to haul large train loads on a 3ft. gauge at the same speeds at which such loads are now taken on the broad gauge. My answer to this is decidedly "Yes."

The Fairlie double bogie engine can not only be made to haul trains fully as heavy and at the same speeds as those now taken on the broad gauge, but it will do this on what is termed a light railway, with rails that shall not be required to exceed 50lb. to the yard, and that shall be fairly worn out, instead of being crushed and ground out as the 84lb rails are under the present system. It will be seen from this that a very large and important saving could be effected on the London & North-western Railway, if its gauge were 3ft. instead of 4ft. 8½ in., without changing in the least degree its present system or management; and that this saving, divided between the public and the shareholders, would largely reduce the tariffs to the one, whilst it as largely increased the dividends to the other.

"Before entering on another example of advantages of the narrow gauge, it will perhaps be well to explain why it is that the average paying load now carried on the North-western Railway bears so small a proportion to the weight of the wagons employed in carrying it. The reason is obvious enough. The railway covers a very large area of country, and penetrates into districts from which there is a very unequal traffic; so that there must be a large average of empty wagons passing from one place to another in order to accommodate this traffic. It is impossible to find the same tonnage leaving the station that enters it. There is also great competition for the traffic; since most, if not all of the large

towns touched by this railway are also supplied by one or more lines belonging to other companies, and the inhabitants, having a choice, take care to avail themselves of it by fighting one company against the other. The result is, that each company tries to outbid its neighbor, not only in rates of charge, but also in affording the greatest despatch. This practically amounts to a competition as to which company shall run the greatest number of half filled or empty wagons. Suppose, for example, that a person delivers a bundle of chairs, or a quantity of any goods, at a station, to be forwarded to some other station. The station-master can not keep the chairs or goods until he has a wagon load going to the same place, but must despatch them forthwith, perhaps alone, in a wagon that ought to carry ten times the quantity. But whatever may be the explanation of the small proportion of paying to non-paying load, the fact must in any case tell in favor of the narrow gauge. Suppose even that the wagons always ran empty one half their time. Take the case of coal wagons, which run full only one way, and return empty. The narrow gauge still has the advantage, for they are only one ton wagons that run empty, instead of being four ton wagons. In the case of the bundle of chairs there would only be the actual weight of the chairs added to that of the one ton wagon, instead of to the weight of a four ton wagon, so that, however the matter is looked at, it will always be found that the advantages on the score of economy are enormously in favor of light narrow gauge railways.

English Railways.

THE LUXURIES OF ENGLISH TRAVEL—SOME VALUABLE HINTS ON RAILWAY MANAGEMENT.

[London Correspondence Louisville-Courier Journal.]

Our railroad system can be vastly benefited by an adoption of some of the improvements which England could lend us. Here the roads are built with the expectation of only paying three or four per cent. dividends, but they are made for one hundred years, and not for ten or twelve, as with us. These substantial constructions can not, of course, be expected in sparsely populated and new countries. But the method of traveling can be adjusted with equal facility upon permanent or temporary roads. In America, everybody is hurried together into a common receptacle, in which the fetid breath of fifty persons, together with the fumes of tobacco juice freely squirted in every direction, and the odors of whisky, etc., make a nauseous atmosphere, sufficient to stifle anybody with weak lungs. In one end of this long carriage you can be roasted by the heat of the stove, and your head split open with the headache from its dry air, whilst in the other portions you can freeze with cold during the winter. To those who like the hot, dry air it would be a great grievance for any other suffering passenger to open a window for a breath of fresh air, and a volley of growls and imprecations would salute the offender.

In England, and on the Continent everywhere carriages are now built with compartments of four, six, eight, and sometimes more seats. They are commodious in first-class carriages, with elegantly arranged seats and backs cushioned with the best hair and springs. There is ample room for the largest sized person, and no cramped position; for the legs can be stretched out without coming

in contact with a hard wood frame, as is invariably the case in our railway carriages. I have slept as comfortably in one of these compartments, as if I had been in a luxurious bed. Something similar has been adopted on the road from Boston to New York, and it is time that our Southern railway officials should wake up and do something for the comfort and convenience of the traveling public. The United States is a republic, but that does not necessitate the pitching in of everybody together the same as if they were pigs in a pen. A party of friends can insure not only comfort but privacy everywhere, and can so travel together as if in their own carriage. Trains are here made up of three classes—first, second and third. The speed is the same, but the accommodations are different. The first class, so immeasurably superior to anything we have (palace cars, etc., included,) costs about 4½ cents per mile; third-class just half the amount.

Compare it with our prices and accommodations. With us, one is never secure from having a drunken man on the same seat, or a tobacco squitter flooding the floor beneath one's feet with his spittle, or something else disagreeable. There is no more objection to a man choosing his traveling society and paying higher for comforts, than there is in securing any other privilege that money commands. It would, therefore, be eminently appropriate for some of the railroads centering in Louisville to inaugurate a system similar to the one in vogue here. There should also be parties at every station to show passengers a seat, and not leave them to grope around hunting up one for themselves. No person is ever allowed to enter a train here when it is in motion; and in cases where injuries have ensued from violations of this rule, not only is there a lack of sympathy, but the offenders are prosecuted and fined \$10. It would amply repay our railway officials to send some one to examine these points and put them in force in America.

The Manufacture of Tar Pavement.

In most provincial towns there are two important bodies of men, the paving commissioners and the gas directors. The one is pledged to keep the rates low, and the other to keep the price of gas as will enable them to provide the statutory dividend. As one means of ensuring a cheap supply of gas is to create a greater demand and obtain a better price for the residual products, it is of advantage to consider a subject the adoption of which would be advantageous to both of these bodies. It is not a new one, but has hitherto been a neglected source of revenue to gas companies, and will also be a great benefit to the public. That subject is tar pavement. In some countries, such as Yorkshire, where stone is as abundant as brain is said to be, tar pavement will receive but little attention; but in the eastern and some other countries where the same conditions do not exist, but where York flag costs 7s per yard, tar pavement is a desideratum. In such districts there is a scramble for pavement; and, on account of the high price, unless a paving commissioner reside in the street, it remains unpaved.

Tar pavement may be made of the ordinary cinder dirt produced in gas works, of shingle, or of a mixture of both. The material is burnt in heaps like ballast, and when hot is mixed with hot tar. In practice a small fire of coke is made on the ground, and covered

with cinder dirt or shingle. When this layer is hot another is added, and so on in succession until a large enough heap has been provided. The tar is now boiled in an iron copper, and taken when hot and mixed with the hot material from the heap already described, in quantities of two bushels at a time, in about the proportion of one gallon to every bushel of cinder dirt, and slightly less than a gallon for the gravel. It is turned over and over with the shovel until every part of the material has got a covering of tar. Then the whole is passed through a sieve $\frac{3}{4}$ inch mesh, and part of it through another $\frac{1}{4}$ inch mesh, and put in heaps until required. Indeed, it may be kept for months before being laid down.

Before the pavement is laid, an edging should be provided about 2 inches thick, and projecting 2 inches above the surface of the ground to be covered, which should be tolerably even. It is advisable to have the ground next the curb well trodden on and rammed before the pavement is laid, otherwise there will be an uneven hollow next the curb. In laying, the rough stuff is put down first and rolled tolerably firm, then the second quality is put on, then the third, and when the whole has been raked level, a little of the finest material is sifted on through a sieve with $\frac{1}{4}$ inch meshes, and a little fine white shingle or Derbyshire spar is sprinkled on the top. The whole must now be well rolled. The best roller is a water ballast roller, which at first is used without ballast, and well wetted to prevent adhesion of the material, and when the pavement is slightly consolidated, the full weight should be applied.

For heavy cart traffic, the material should be made of shingle only, heated and mixed as above, and well rolled. Both descriptions of pavement are laid best and most easily in warm weather, and should be rolled when the sun has warmed it well. Those parts in angles should be well rammed and trimmed off with a light shovel.

Though apparently a simple manufacture, there is a little difficulty in ascertaining the proportion of tar to gravel or cinder dirt. A little experience will only be necessary in this, as well as in all other manufactures, to enable any one to carry it out successfully.

This pavement can not be spoken of too highly, as it is cheap, wears well, and can be easily repaired. The color, which never can be made to equal York flag, and the smell for some time after it is laid are the only objections to its use; it can be laid with a good profit in any district at 1s 4d per yard; and besides being a boon to the public, who must otherwise walk on gravel, is a great advantage to gas companies. To them it provides a remunerative outlet for their tar, which often otherwise must be sold at a low price to distant distillers.

A late paragraph, which appeared in the daily press, states that it is proposed to pave the streets of London with stone laid in asphaltic instead of lime grout. This is just a more systematic application of the above described plan; for the tar, by being boiled and thrown on hot stones, becomes an elastic asphaltic.—*Nature*.

The cost of the improvement of the Sault Ste. Marie Canal, it is estimated, will reach \$240,000. The work can not be completed short of two years.

During 1869, there were sold by twelve manufacturing companies in this country 320,600 sewing machines.

Cotton Seed and its Uses.

Since the war the South has derived income from many sources hitherto unnoticed or unknown. Among these articles which are constantly adding to the old or creating new wealth is one which, though known and manufactured before, was then struggling against prejudice and in obscurity, but now takes a leading rank. This article is the oil derived from the seed of the cotton plant, and though the manufacture has increased rapidly since 1865, it has but lately been regularly quoted in the market reports of the city papers.

Previous to 1860 there was invested in the manufacture of this oil about \$200,000. There is now about twice that sum in the city of New York alone. At the South, there is in Memphis about \$250,000, as much or more in New Orleans; while St. Louis, Mobile, Vicksburg, Galveston, all have large manufacturing, and there are others in smaller towns. We may safely say that \$2,000,000 of capital is now invested in machinery and fixtures for the manufacture of this oil. One may form some idea of this business by the fact that 17,163 bags of seed were received at the Port of New York from January to March, 1870, and but a small part of the oil made is pressed from the seed here. These bags average 100 pounds each, hence we have for the three months a total of 1,716,300 pounds.

The cotton seed, as it comes from the Whitney gin, has considerable lint on it and a tough, close fitting hull. Previous to the war this hull was seldom taken off and the lint never, hence there was a considerable loss of oil and an inferior cake produced. The manufacture at present is conducted as follows: The seeds, as they come from the plantations, are first passed through a "linter," thence directly into the hulling-machine. Then, separated from the hulls, the kernels are ground and pressed to extract the oil. The presses used are the improved hydraulic presses, usually of three columns or series of cases of five each. The cake, after pressure, is usually shipped in its thin, oblong shape, but is ground to meal before use. This pressing produces the crude oil. Its quality, value, and color are due entirely to the freshness of the seed, the amount of heat put on the kernels previous to and during pressure, also care in operation and cleanliness of bags, etc.

There is a patented process in which the oil is extracted from the seed by maceration in bi-sulphide of carbon or light hydro-carbons. It has not yet been operated here on a large scale, owing to the enormous rates asked by the patentee, but it is said a firm is this year to erect works at New Orleans to work under his formula.

We submit an estimate of the machinery for a factory, which will at least answer as an approximate for any one desiring to go into the business: One press of three tiers of cases (5 each), usual size, with ram, bags, squeezers, seed heater, hydraulic pump, pipe and connections, driving shafts and gear, seed rollers, stone crushers with gearing, clarifier, revolving screen, elevators, and power to drive—\$12,000. Size and cost of building will vary with amount of work to be done. Plenty of airy room is necessary for storing seed, and, if more than one press is used, still more room; in fact, in all such operations, it is better to have too much than too little room. A building 40x60 is small enough, and 60x100 is better, and at least three stories high.

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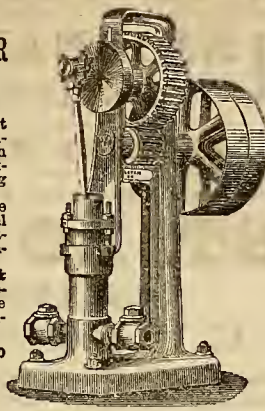
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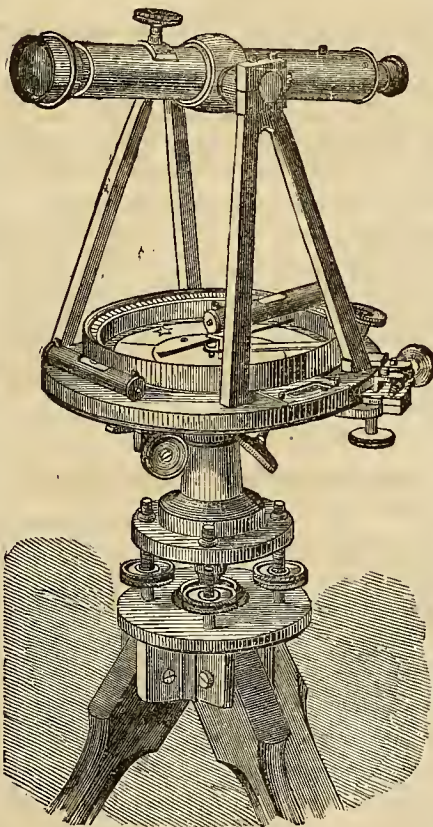
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JANUARY 1st, 1870.

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TRAINS RUN AS FOLLOWS

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St. Louis..... 7:15 A. M. 10:55 P. M.

Osgood Accommodation..... 3:10 P. M. 8:45 A. M.

Through Western Express..... 5:10 P. M. 8:30 P. M.

Night Express..... 10:30 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cincinnati time.

For tickets or information apply at Offices, 133 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.

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ROCHESTER to NEW YORK, - 385 Miles
AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,
(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,
daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

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The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach here a per portion of the city without the expense and annoyance of a street car or omnibus transfer.

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Which can be obtained at the Company's Offices in Cincinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet House, and foot of Broadway, (Spencer House Block), and at all principal Ticket Offices in the South and South-west.

W. E. SHATTUC, Gen'l. Pass'r Ag't
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Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 pm
*St. Louis and Springfield Express. 10.20 pm		3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.70 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
A. E. CLARK, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:45 A. M.
do do do		6:50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the depot office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
SAM'L STEPHENSON, Gen'l Ticket Ag't.
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For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & Co.,
No. 27 West Third Street, Cincinnati.
W. P. SHINN, General Freight Agent.
Pittsburgh, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Canipbellsburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville, Canipbellsburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Canipbellsburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty St., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

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Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoning City, Tuckhannock &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Lids, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Saturdays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Philadelphia for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburgh, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburgh, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty St., N. Y., at No. 1 Astor House, Nos. 254, 271, 526 Broadway, at No. 10 Greenwich St., and at the principal hotels.

R. E. RICKER, Superintendent
H. P. BALDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - } Editors.
T. WRIGHTSON, - - - }
W. A. MUNSELL, Associate Editor.

CINCINNATI, THURSDAY, NOVEMBER, 10, 1870.

The Railroad Record,

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WRIGHTSON & CO., Prop'rs.

The Bridge Business in Cincinnati and the Interests of the City.

It is very obvious that those who have been getting up a flurry on the bridge question are much more attentive to their own interests than they are to those of the city; and equally obvious, that they do not understand the real elements of the question. They set out without knowing what the law is; and after finding out that the law is with the company, they set about asserting, not how the bridge ought to be built, or how it ought to be raised, nor the real reasons which induced the company to make it low, with a draw. And finally, to settle the whole matter conclusively, they called in the men of Pittsburg and Louisville! Pittsburg and Louisville have been and are obstructing the Ohio, and Cincinnati calls them in to arbitrate the matter! It is, therefore, obvious that those men who are making an outcry about the bridge neither consider the interests of Cincinnati or understand the real difficulties of the bridge. Now to set ourselves right upon the matter, we think the bridge ought to be raised, and that it is clearly the interest of the Pennsylvania company to do it. The grounds of this opinion we can briefly show. In the first place the bridge entanglement arises from the same cause which has embarrassed almost every railroad enterprise in Cincinnati, viz: the want of foresight and of plan as to the future wants of the city. It has been obvious for many years that the Ohio river must be bridged, and before any company undertook to bridge it, the city should have had its Board of Improvements determine upon

what conditions bridging should be accomplished, in order to better accommodate both the land and water commerce. But no; the city goes blundering on, without seeing or attempting to foresee any thing in the future. The same was true, even to a greater degree, in regard to railroad entrances. Nature provided but one railroad entrance for the north side, viz: by the valley of Mill creek, besides the narrow bank of the Ohio on the east and west. The result is what we see, a perfect choking up of the narrow outlets and the conflicting interests of the various companies. To avoid this the tunnel was planned, and it would have relieved this question of all difficulty, and made much the shortest and best entrance to the city, and we say the cheapest, for we think that the cost of running the new Baltimore track into the city will be more than to complete the tunnel.

But the city cared nothing for these things. Every thing went on higgledy-piggledy, heads and feet together, till we see now a perfect jargon of questions relating to bridges, railroads, streets, etc. But it is in vain to remedy this evil, although much may be done by foresight in the new city on the hills. Let us proceed to the bridge question. The company ought to raise the bridge for three reasons: 1. Say what we may, a draw-bridge at high water will be excessively inconvenient and unsafe, not only to the commerce of the river but to the company itself. At high water, or at a good stage of water, the passage of boats is very frequent, and will present a great inconvenience to the railroad itself. The liability to accident will be great, and since it is clear that the bridge can be raised without any unreasonable expense, the company will be liable for all damages. 2. All corporations should pay regard to public opinion, and if the men engaged in the commerce of the Ohio river universally demand a high bridge, it will be the interest of the road to regard that opinion. 3. Most important of all to the company is what we think a clear fact, that the company can not get along conveniently or even safely on the present plan. Here we come to what was the difficulty in the company, and which those who denounce the company and the bridge utterly ignore. This is the difficulty of grading up to a high bridge, we might almost say impossibility on the plan the company is now going on. A bridge one hundred feet high, will be nearly if not quite forty feet above Front street. The Little Miami R. R. depot is on that street. How will you grade up to it? But this difficulty works nearly or quite as strongly with the track the company are now laying. We have looked at it, and we undertake to say the track now laid to the bridge will not work safely or even cheaply. A very short curve and a very steep grade are made up to the bridge. The result will be accidents and extra cost. The company must adopt some other plan, or they will sooner or later fail in the bridge business. Is

there no other plan? The very best plan is to resort to the one planned thirty years ago; complete the TUNNEL and make the city distribution on the upper plain. People start back from bold ideas, but if any practical railroad man examines the question clearly, he will find it the *cheapest* as well as the best plan for the Pennsylvania road. 1. The bridge at 100 feet will be nearly on a level with the upper plain of Cincinnati, and the route will be direct through Eggleston Avenue, the right to use which the city will readily grant. 2. The line through the tunnel direct to some point on the Miami river, will be five miles shorter than by the main route. 3. These two facts being given, the time, and friction, and wear, in taking freight cars over the river by the tunnel route will be far less. If these things are true, then, although more capital will be required to make the improvements, in the end it will be the *cheapest plan*. Suppose the river bridged, and the road made through the tunnel, as we suppose, look at the result. With a shorter and far better line, with no high grades to obstruct, no obstruction to navigation, the cars of the Pennsylvania road will enter Cincinnati and go over the Ohio much cheaper and better than can be done on any other route, and will gain about one hour in time. We say, and it can be demonstrated that *with this advantage the Pennsylvania route can not be rivaled by any other one*. If a tunnel route be secured, no other company can get one equal to it. We make these suggestions because they meet the case exactly, both for the city and the company. The plan looks bold only because it requires new capital; but the company have the capital, and it will be the best invested railroad money that ever was laid out. To make the bridge 100 feet high will probably be a necessity of the company; and if so, how else can she meet the case?

Piqua, St. Mary's & Celina Railroad.

The certificate of incorporation of the Piqua, St. Mary's & Celina Railroad Company was filed to-day. The proposed road runs through Miami, Shelby, Auglaize and Mercer counties. The incorporators are J. F. McKinney, Henry Flesh, William Scott, John G. Young, Charles C. Chute. Capital stock, \$400,000.

The object of this scheme, so far as we can see, is first to head off the Stillwater Valley Railroad, as that project can not very well terminate at Piqua; second, to combine the material aid that may be furnished for railway building by both St. Mary's and Celina and their surrounding localities; third, to make this the outlet for that unfortunate though none the less valuable enterprise now partially made, and some day to be finished, that extends from Celina northward through the lower Peninsula of Michigan, and that finds its Northern terminus at the Straits of

Mackinaw; and fourth, to give Piqua a new line of railway to the vast interior we have spoken of.

If we are right in our conjectures, the first object we have assigned concerns the local interests of the new line and those of the Stillwater Valley scheme; as the success of either supersedes the necessity and probably the possibility of building the other, as both make Celina a point, and both expect and indeed must be sustained by the great northern line beyond.

The second object is all right, both as regards the location of such a line of road, and in a financial point of view; and the fourth is quite creditable to the enterprise and sagacity of the good people of Piqua.

It is the third object we wish to dwell upon a few moments.

Is this the proper outlet to the great Northern line we have mentioned?

When this grand scheme was concocted, it was intended to be the northern half of an axial line that should extend from the Gulf of Mexico to the head of the great lakes, and that the city of Cincinnati should be the central point. One of the editors of this paper wrote the first report upon this work, and set out its merits with more than even his usual clearness and ability, and excited so much general interest in it that measures were taken in a short time afterward that resulted in the opening of the work (by sections) upon more than two-thirds of the entire line. And more than three-fourths of what was therein predicted would occur in the development of the country this road would supply, and that would add value to and make necessary this great work, is to-day a recognized fact, notwithstanding it was then regarded as Utopian, and there happened disturbing influences not to have been expected and not taken into the account.

But it is of the northern half we are to write now, the original plan for which was to obtain as straight a line as possible from the Ohio river to the head of the lakes, and it was not only possible, but it was as practicable for all the purposes of construction, and to supply all the principal business places in its course, and the very best interests of the country it was intended to serve, to have had four hundred miles of road so nearly straight as not to have deflected a mile from an air line, a feature not then possible to any road made or projected in the world. This line would have extended from Eaton, in Preble county, to the Straits of Mackinaw.

But at the southern terminus, Eaton, a road already existing was intersected, that was itself checked again by another road at Hamilton, and no arrangements could be effected by which this northern road could find its natural southern terminus, the city of Cincinnati, without which it was but a fragment and a contributor to other less important interests.

To obviate this the first sacrifice was made, and the line was stopped at Greenville, 22 miles north of Eaton, and some sort of meaningless arrangements were made with the Greenville & Dayton road to reach Dodson's station, and thence over what was known as the Twin creek road to reach Carlisle, on the C., H. & D. road, a most senseless and impracticable zigzag, and that still left the northern project without the credit and strength of a head, or the support such a scheme would receive had it found an independent entrance into the then rapidly growing city of Cincinnati.

At this point, Greenville, the road was never welcome. It was never encouraged, except in the beginning, and then only with a few hypocritical huzzas. It has been the victim upon which a lot of legal leeches fastened and fattened, and therefore it did not receive even the feeble aid such a place could have given it. There was nothing gained by the change from Eaton, but on the contrary the road was plunged into difficulties that checked its progress, impaired its credit, and brought ruin upon many of its most ardent supporters. This state of things, therefore, compels another change of base.

Where shall it be?

Piqua is a beautiful place, the center of a rich section of country—a manufacturing point of importance, a thriving, enterprising, go-ahead city, and worthy of every improvement and all the business it can secure. But for this great northern artery it is too far east. A detour of this line from Celina to St. Mary's and Piqua breaks up the very purpose of the scheme. It would no longer be the northern half of the project we have spoken of. It would be sacrificing the body to the arm, the trunk to a branch. From Piqua, to reach Cincinnati, is more difficult than from any of the other points named, because the distance is greater, and other roads intervene. And besides, it is not such a business and railway center as would give strength and character to this enterprise. It would still want for the proper head that would make it complete and profitable, instead of a fragment and of doubtful productivity. We think it would be difficult to sell the bonds of the road with such a terminus at other than speculative and therefore ruinous rates. This of itself is sufficient to demand the most thorough consideration before the venture is engaged in.

We think this road should continue upon the original straight line as far as possible, consistent with the physical features of the country through which it is to pass, and the point of deflection it must make in order to pass into the valley of the Miamis. And that it should find in this valley some point as a terminus that is of such magnitude and importance as to give the scheme the character it has always wanted in this particular, and that offers pos-

sibilities, at least, of some day when it has gathered strength and reached an importance that its merits are sure to give it, of finding an independent and commanding entrance into the city of Cincinnati. And this route is unquestionably to be found down the beautiful and productive Stillwater valley.

The Baltimore & Ohio Cut-Off.

It is rumored in railroad circles hereabouts, that the Baltimore and Ohio Railway Company propose making a direct through route from Baltimore to Indianapolis and St. Louis, by constructing, or having constructed under their auspices, a link from Loveland, on the old Marietta road, to Hamilton, and connecting with the Indianapolis and Cincinnati Junction Railroad.

This link, we are informed, will be less than twenty miles long, and will have a distance of twenty-two miles from all points west to Loveland as a central point.

This is a gain of considerable importance when the immense business that will be done by this line is considered. It will probably equal a saving of from two to three hundred miles a day for a single train.

This is a cut-off from our city to which we would object, if we saw that it would do any good. But as we can't figure out the distance in our favor, and these great companies have a way of doing about as they please, and our city is not in a railroad way just now, we submit to being hedged in, and hope we may receive some indirect benefit at least, by the growth of Hamilton.

It is suggested that a division of the business between Hamilton and this city is worthy the consideration of this company, and that this may be had, and the direct line west retained with but a few miles additional distance, by making the proposed link from some point on its line nearer this city than Loveland, to Hamilton.

There is something in this idea, and if the valuable local trade, and the probable connections with southern roads are considered in addition, we may yet be in the great channel of eastern and western traffic, and not completely surrounded.

New General Ticket Agent.

We are officially informed that Mr. A. B. Southard has resigned his position as General Ticket Agent of the Indianapolis, Peru and Chicago Railway, and that Mr. C. A. Lynch, a most worthy and excellent gentleman, has been appointed to fill the vacancy.

All reports and correspondence therefore, relative to the Ticket Department of this Company, should be addressed to Mr. Lynch.

—They have found gas coal along the line of the Pacific Railroad that yields 10,000 feet of gas to the ton.

Cincinnati, Indianapolis & Lafayette Railroad.

NEW BOARD OF DIRECTORS ELECTED—HENRY C. LORD LEFT OUT IN THE COLD—A THOROUGH EXAMINATION ORDERED.

The stockholders of the Cincinnati, Indianapolis & Lafayette Railroad, met yesterday at Morris, Indiana, for the purpose of effecting a new organization. 80,797 shares were represented, and the following gentlemen were unanimously elected to constitute the new Board of Directors:

M. E. Ingalls, William P. Harries, Thomas H. Perkins, Boston; John S. Kennedy, George Bliss, William A. Booth, New York; W. O. Rockwood, Indianapolis; L. B. Lewis, Lawrenceburg; W. W. Smith, Cincinnati.

The new board organized by electing M. E. Ingalls President *pro tem*, and A. Worth, Secretary.

On motion, the Directors were instructed to institute a thorough examination into the conduct and management of the road, from its inception to the present time, and its present condition, as regards material and finances.

Hon. Aaron F. Perry and Hon. William S. Groesbeck were appointed a Stockholders' Committee, to advise with the Board of Directors in relation to the examination.

The New Railroad Enterprise.

The enterprise of building a north-west road, of which we spoke some weeks since, has at last assumed a somewhat definite shape, and the surveyors are now out on the line. The road as contemplated, will leave the Ohio river at a point near Ironton, pass through the iron and coal regions of southern Ohio on to Hillsboro, through Vienna, to Wilmington, crossing the Little Miami Railroad at Clinton Valley; thence to Dayton, where there will be connections to Chicago and Toledo. The road, if built, will be an important one, as the southern end will no doubt soon connect with the Chesapeake & Ohio Railroad, when a complete line of road will be opened from Chicago to Norfolk. This enterprise should meet from our citizens every encouragement in their power. The route is a practicable one, and would develop the interests of this county to a great extent, besides opening up the rich mineral fields of south-eastern Ohio. Coal would be cheapened and manufactures encouraged. Let the road be built by all means, and whatever is necessary to be done let our citizens actively encourage. We understand that \$4,000 per mile will grade the road, and that the Chesapeake and Ohio Company will finish it. We shall know more definitely the shape matters will take when the engineers report.—*Wilmington Jour.*

OPERATIONS OF THE FREE DELIVERY SYSTEM—The Post-office Department has completed its synopsis of the operations of the free delivery system in the cities of the United States for the fiscal year ending June 30, 1870. It appears that during that period there were mail letters delivered, 97,811,831; local letters delivered, 21,807,649. Newspapers delivered, 27,867,023. Total cost, \$1,230,079 85. New York city—Mail letters delivered, 19,500,962; local letters delivered, 9,303,345; newspapers delivered, 4,950,563. Total cost, \$29,629,007.

The Illinois Central Railroad in Iowa.

The Illinois Central Railroad Company recently took possession of the Iowa Falls and Sioux City Railroad from Fort Dodge to Sioux City. This completes a line from Dubuque to Sioux City, directly across the State of Iowa, at a distance of about 70 miles from its northern boundary. This line, which is leased and operated by the Illinois Central Company, was constructed and is owned by two separate companies, who receive a percentage of the earnings as a rental. The Dubuque and Sioux City Railroad Company owns that part of the line between Dubuque and Iowa Falls, 143½ miles, and the Iowa Falls and Sioux City Railroad Company the 183 miles between Iowa Falls and Sioux City. The entire line has been called by the managers the "Iowa Division" of the Illinois Central, but it is best known to the public as the Dubuque and Sioux City road, and this probably will continue to be its popular name. This is the fourth great railroad stretching across Iowa from east to west, all having direct connections with Chicago. It is noticeable that the distance to the Missouri river from Chicago is nearly the same by all four of these routes, the variations not being more than 25 miles, and the distances varying from 490 to 514½ miles. So far this is the most northerly of the routes, but the Milwaukee and St. Paul Company is constructing a line nearly parallel with and about 40 miles north from it. On the south the nearest line is that of the Chicago and North-western, distant generally from 30 to 40 miles. Thus it has a broad belt of country on each side of it whose traffic it will naturally obtain. There will soon be three lines crossing it from north to south, but these can draw very little from its business, as they will form routes to the south rather than to the east. It has itself one feeder from the north, the Cedar Falls and Minnesota Railroad, which extends from Cedar Falls, 98 miles west of Dubuque, in a north-westerly direction to Mona, on the Minnesota line, a distance of 74 miles. Thus the entire length of line in Iowa operated by the Illinois Central is 400½ miles. These lines pass through an extremely fertile country, of which a very small percentage is waste land. As far as to Fort Dodge it is pretty well settled, but beyond, most of the land is yet to be occupied, and east of Fort Dodge even, there is room for double the present population in the country, to say nothing of the towns. The country on the western half of the road is one of the most attractive to settlers in America, the land being fertile and cheap, and provided with excellent routes of transportation.—*Chicago Jour. of Com.*

MOBILE AND NEW ORLEANS UNITED BY RAIL

—It is not quite ten months since work was commenced on the Chattanooga Railroad, and to-day the whole distance of one hundred and thirty-nine miles is completed. The last rail was laid yesterday at 10:30 o'clock, and a few hours afterward the ceremony of driving the last two spikes into the road was to take place. Trains, with invited guests, left Mobile and New Orleans to meet at a point in the vicinity of Chef Mentuer, some twenty-seven miles from this city.

The train from our city started from the foot of Canal street shortly before 2 o'clock.

The trains arrived at the place of rendezvous shortly after 4 o'clock, and at 5 o'clock the ceremony of driving the last spike took place. A golden spike was driven into the

road by Mr. Martin Van Brocklin, the Division Engineer of the Mobile Division, and a silver spike by Mr. R. W. Rogers, the resident Engineer.

There was a silence almost solemn, when the slow, measured strokes of the hammer which adjusted the last two spikes in their places announced that the Crescent City was united with the Gulf City by strong iron bands. Every one present felt the importance of the event, and all appeared rejoiced at the opening of this new highway of travel.—*N. O. Picayune.*

Railroad Building in Iowa in 1870.

The number of miles of railroad in operation in this State at the beginning of the present year was 2,094, of which 643 miles were built during the year 1869. Last year was considered an exceptional one, as it witnessed the completion of two of the great east and west lines across the State, and few, even of the best informed of our citizens on this subject, supposed that the number of miles completed in 1869, would be surpassed or equaled by the operations of 1870. But the prospect now is, notwithstanding the check several enterprises have received on account of the European war, that the number of miles completed this year, will be greater than that of last. The following table is our estimate of the number of miles that will be finished this year by the different companies named:

Burlington & Missouri river.....	65
Chicago & Southwestern.....	100
Midland.....	25
Iowa Falls & Sioux City.....	120
Milwaukee & St. Paul.....	87
Davenport & St. Paul.....	40
Burlington, Cedar Rapids and Minn.....	105
Iowa Central.....	125
North Missouri.....	25
Des Moines Valley.....	15

Total.....708

There are several other companies who have the work of grading and bridging well advanced on their several lines, and may get down more or less iron this year, but as we wished to give none not reasonably certain to accomplish what we state, we have not included them in the above estimate. Of this number are the Burlington & South-western, which will have forty miles of grading done before the close of the year, with a fair prospect of having twenty iron down within that time; the Keokuk, Iowa City & St. Paul, who also have a considerable amount of grading done; the Sabula, Ackley & Dakota; the Albia, Knoxville & Des Moines; the Des Moines & Indianola; the Dubuque & Minnesota, and some others.

The year 1870 will close with not less than 2,800 miles of completed railroads in Iowa, and enough more graded or under contract with a fair prospect for completion in 1871 to make the whole amount up to 3,500 miles. This wonderful development of our railroad system can but have a powerful influence on the growth and prosperity of our State.

☞ The test of war has shown the Chassepot gun to be effective at 1,880 yards and easily able to fire five times a minute. The same test puts the effective range of the needle gun at 600 yards. Thus, if the Germans move in a charge, the French can fire upon them effectively over two-thirds of a mile, before needle guns can be used in return.

Pittsburg in a Nutshell.

[Condensed from the Philadelphia Press.]

Perhaps no American city combines greater natural advantages for trade. Its water communications consist of the great Mississippi river system, 1,700 miles long, with every part of which the Ohio preserves communication at all seasons. The two great confluent of that river—the Alleghany and Monongahela—penetrate a splendid region, teeming with a productive population. These natural communications have been supplemented by an extensive railway system, placing Pittsburg within striking distance of all the great commercial points of the country. Yet with all those advantages this iron city finds her vocation less in trade than in production.

The Youghiogheny valley, penetrating lengthwise the mountain range through Fayette, Westmoreland, and Alleghany counties, a hundred miles, brings down the richest bituminous coal, with iron ore of a very superior quality. The Monongahela gives access to extensive coal beds from four to ten feet thick. Other streams penetrate a grand coal region of 8,000,000 acres. The Alleghany brings down annually ten billion feet of pine timber, worth \$12,000,000.

In the coal mines around Pittsburg, \$12, 169,000 are invested, covering 22,710 acres under development, and giving employment to 8,000 miners in 113 collieries. The annual production is 100,000,000 bushels, or 4,000,000 tons, of which 30,000,000 bushels are consumed in Pittsburg. Of the remainder, 52,000,000 bushels are exported by water and 18,000,000 by rail. The results of this enormous motive power are exhibited in a manufacturing industry of magnificent proportions. The iron mills embrace 524 boiling furnaces, 172 heating furnaces, 510 nail, tack, and spike machines, 69 steam hammers, and 195 steam engines. The production of the past year was \$20,000,000. Pittsburg furnishes 38 per cent. of American iron; 68 per cent. of our steel, and 46 per cent. of our glass. The latter embraces 69 factories, producing annually 70,000,000 bottles, 600,000 boxes of window glass, and 12,000 tons of glass ware, worth \$7,000,000. The grand total of manufacturing interests, show an invested capital of \$106,000,000, and an annual product of \$80,000,000.

CODORUS ORE.—Considerable has been published recently concerning the "Codus Ore," as it is styled, found in York county, Pa., for which it is claimed that by mixing with an ordinary pig iron in the reverberatory furnace, a good quality of steel bloom is produced. We are informed that steel rails made from these blooms have been in use on the Baltimore and Ohio Railroad for eighteen months, and as yet, show but little signs of wear, also on the Cleveland and Pittsburg road, and on the Eastern Division of the Pittsburg, Fort Wayne and Chicago Railroad, for eight months, and as the report says: "although in a position favorable to a quick test, are yet as good as new." This is pretty strong evidence in favor of this new process for making steel, and we trust the subject will be thoroughly investigated, and if it is found that nature has provided us with an ore that furnishes us with these results, the sooner the iron interests of the country adopt it, the more speedily will they themselves, and the whole country, reap the benefit of this remarkable discovery.—*Iron Age*.

The New American Steel Again.

[From the New York Tribune, Sep. 5.]

The account which lately appeared in the *Tribune* of a remarkable development in the manufacture of steel by the use of the Codorus ore found in York Co., Penn., has brought to notice a second discovery by which "specimens of steel of good and uniform quality have been made at about the same expense as that of the York steel, viz: between 3 and 4 cents per pound." The novel feature in this case is the fact that this steel is made directly from the ore, at one fusion, and without making pig-iron at any stage of the process. The process eliminates sulphur, phosphorus, and all other impurities it is claimed, "from the ore itself," prior to its conversion directly into steel. The second peculiarity, is the fact that the ore is such that it has heretofore resisted all known processes, and has been regarded as worthless, because so full of impurities. The 200th part of one per cent. of phosphorus is said to unfit iron for conversion into steel by the Bessemer process. It is claimed for the new process, that the metallized ore prepared by it is chemically pure and ready for conversion into steel of absolutely uniform quality.

The discovery of an inexhaustible bed of iron ore at Port Leyden, Lewis Co., 40 miles above Utica, a few years ago tempted citizens of the latter named place to invest about \$500,000 in the effort to manufacture iron there. The "Port Leyden Iron Works" were a sad failure, and the money invested was lost, as pig-iron could not be produced from the ore. From this impracticable ore, steel is now produced at one fusion, by a process invented by Prof. E. L. Seymour, a metallurgist and chemist. The ore is crushed, in something like an ordinary quartz-crusher, until reduced to about the fineness of rifle powder. It is then thrown into a revolving cylinder, in which are set numerous magnets. The ore is of the kind known as "magnetic." By an arrangement of small brushes, the metallic particles are separated from the refuse, which is principally stony and earthy matter in the shape of fine dust. The application of certain chemicals and fusion by charcoal are the next steps, and the immediate product is pure steel, ready for molding into "ingots." Specimens of steel thus manufactured and converted into finely tempered table cutlery, and other articles, and the certificate of a well known cutler of Brooklyn, who made the articles, that it is as good steel as he ever worked, and adapted to all cutlery purposes, have been exhibited. The estimated cost of this steel is less than four cents. By the Seymour process it is claimed that the aim of ironmasters and chemists for the last 200 years is accomplished—viz: to rid iron of its arch enemies, sulphur and phosphorus—the former rendering the metal what is technically called "red short," so that it flies to pieces under the hammer when at a red heat, though it may be quite strong when cold; while the least quantity of phosphorus renders the metal "cold short," making it weak and brittle when cold, though quite strong when hot.

In regard to Prof. Seymour's claim as set forth in the above article, the *Iron Age* remarks:

"Not to put too fine a point upon it, this is certainly modest; and yet it would appear that the manufacture of cast steel of perfect uniformity has been within the range of human possibility hitherto! The miners of the Pacific Slope have a holy horror of the reports of what they term a "scientific cuss,"

and we must confess to a greater faith in the indorsement of some practical workers of steel, than in the grandiloquent assertions of the Professor alluded to. And yet, from all these crude and ill-digested wonders, will one day spring the "subtle alchemy" which we sorely need, and cheap steel be the rule, and not exception, in our market."

Discoveries and Inventions.

- Violins invented, 1477.
- Pumps invented, 1425.
- Camera obscura invented, 1515.
- Engraving on wood invented, 1460.
- Roses first planted in England, 1522.
- Paper first made of linen rags, 1417.
- Shillings first coined in England, 1504.
- Diamonds first polished and cut, 1439.
- Almanacs first published at Buda, 1470.
- Gun locks invented at Nuremburg, 1517.
- Printing invented by Faust, Ger., 1441.
- Watches first made at Nuremburg, 1477.
- Hats first made in Europe, at Paris, 1504.
- Soap first made at London and Bristol, 1524.
- Slops and pauses in literature first used, 1520.
- Theatrical performances first given in England, 1378.
- Muskets invented and first used in England, 1421.
- Post offices first established in Europe, in France, 1464.
- Printing introduced into England, by Caxton, 1474.
- Maps and charts first brought to England, 1489.
- Fortifications first built in the present style, 1500.
- Sugar refining first practiced by a Venetian, 1503.
- Chocolate introduced into England, from Mexico, 1520.
- Turkeys introduced into England, from America, 1520.
- Engraving on copper invented by Fimmi-guerre, Italy, 1451.
- Canals in modern style first made in Europe, Italy, 1481.
- Algebra introduced into Europe by the Saracans, 1412.
- City streets first lighted in Modern Europe, Paris, 1523.
- Greek language introduced into England, by Grocyu, 1491.
- Cast in plaster, first invented in Florence, by Vericbio, 1470.
- Copernicus discovered the true theory of the solar system, 1532.
- Gardening first introduced into England, from Netherlands, 1509.
- Playing cards invented, for the amusement of the French King, 1390.
- Dice invented, 1500 B. C.
- Shipping wheels invented at Brunswick, 1530.
- Air guns were invented as early as 1645.
- Balloons were invented by Gusmac, a Jesuit, 1729.
- Guillotine, the inventor of the guillotine, the dreadful instrument of punishment in France, was born at Saintes, 20th March, 1738. It is a false rumor that he perished by his own devices. He died in his bed.
- Battering rams were used 441 B. C.
- Bel lows invented, 554 B. C.
- Hats invented, 1404.—*Economist*.

Extraordinary Discovery in the Air we Breathe.

Professor Tyndall, in a recent lecture delivered before the Royal Institution, has given to the world some very important and remarkable revelations, concerning the atmospheric air which we breathe. The subject of the lecture was "Dust and Disease," and its object was to show that this dust is the prime cause of epidemic disease. Everybody has seen the innumerable particles of dust in what is popularly called a sunbeam, this dust is not atmospheric air, but consists, as the Professor conclusively proved, of organic matter. In order to test the nature of these infinitesimal particles, they were first submitted to the action of powerful acids and alkalies, which appeared to have no effect in diminishing them, they were then submitted to the action of heat in the flame of a spirit lamp, when they all instantly disappeared, thus proving that they were composed of organic matter. He also proved that these beams of light, owe their light entirely to the dust contained in the atmosphere, and that when the dust is removed there being nothing to reflect the light on the eye, that perfect blackness is the result. He said further, that "the air of London is filled with this organic dust, nor is the country air free from its pollution. It only needs a sufficiently powerful beam to make the air appear as a semi-solid, rather than a gas." He then went on to prove how disease was set up by malaria, which consisted of this dust, and also how ferments and putrefaction owe their existence to these fine organic particles, and that when atmospheric air is deprived of this fine dust, both propagation, decay, and disease are arrested in its presence. Thus meat may be preserved in an atmosphere previously made red hot, and putrefaction is impossible in a vessel where the air has previously been submitted to a very high temperature. Dr. Tyndall then went on to show how we may get rid of these obnoxious and polluting particles, in our atmosphere, simply by filtering the air through cotton wool, and proved the efficacy of this process by a very simple experiment. When we breathe through an ordinary glass tube warmed to prevent condensation, and at the same time keep the tube in a beam of light where the dust becomes visible, we will perceive that the dust in the tube is considerably diminished at each exhalation, thus showing that a large portion of these particles remain in the lungs. If, however, we place some cotton wool in one end of the tube and breathe through the other, all the particles instantly disappear. Dr. Bence Jones repeated Dr. Tyndall's experiments with a silk handkerchief, but not with such marked results. Cotton wool is at present considered the best filter. The Professor concluded his valuable and interesting lecture as follows:

"After the revelations of this evening, such respirators must, I think, come into general use as a defense against contagion. In the crowded dwellings of the London poor, where the isolation of the sick is difficult, if not impossible, the noxious air around the patient may, by this simple means, be restored to practical purity. Thus filtered, attendants may breathe the air unharmed. In all probability the protection of the lungs will be the protection of the entire system. For it is exceedingly probable that the germs which lodge in the air passages, and which at their leisure can work their way across the mucous membrane, are those which sow in the body epidemic disease. If this be so, then disease

can certainly be warded off by filters of cotton wool. I should be most willing to test their efficacy in my own person; and time will decide whether in lung disease also, the woolen respirator can not abate irritation, if not arrest decay. By its means, so far as the germs are concerned, the air of the highest Alps may be brought into the chamber of the invalid."—*National*.

Free Canals.

It is of the utmost importance to the Great West that its products reach a market as little burdened with transportation costs as possible, and that the price of one bushel of wheat be not consumed in marketing another bushel. Hence, the West is full of projects for reaching the seaboard cheaply, and it welcomes each and every improvement that promises the relief desired. We here at the East have little faith in the route by the Mississippi river, and indeed at the West little practical faith is shown in it. It is long, arduous, expensive, and exposed to tropical heats that war against the durability of grain and flour. The St. Lawrence route is a more threatening rival, and that would carry Western products away from us entirely. Now, the Chicago people have a plan before them for a new ship canal at Niagara, to cost a little over five millions of dollars, and they are enterprising enough to push such a work along, if it can be made of any service to them. We, however, in New York, hold a check upon all these new routes and shun pikes. We have the Hudson river and the Erie canal, and beyond that, continuous water to the great grain elevators of the Lake ports. But we have also tolls on the Erie Canal, and an insufficient capacity for that great artery of commerce. These tolls and this limited capacity burden transportation with delay and expense, and give nerve to railroad competition on the one hand, and plausibility to new routes on the other. The course for this State to pursue is, in the language of the resolutions of a meeting in Buffalo, to make the Erie and Oswego canals "the channels of a free, unburdened traffic, subject to no higher tolls than are necessary for their repair, and to give them such ample capacity that steam vessels of large burden can be employed in their navigation, to the end that their full usefulness, as the conservators of cheap transportation between the farms of the West and the markets of the East, may be developed and maintained." A free water way was the original thought of the earliest projectors of these canals. It has been the hope of all the most sagacious statesmen of New York since. It is a dream, soon, we trust to be realized by the acceptance by the people of this State of the canal funding measure that last winter received in the Legislature the almost unanimous vote of all the members. It was then and there made a non-political measure, and such the people should regard it.—*Commercial Advertiser*.

There are fourteen steamers engaged in the trade of Lake Superior, of a total capacity of nearly 10,000 tons. The five largest of these steamers run from Cleveland and Detroit, five from Chicago and Milwaukee, two from Buffalo, and two from Collingwood, Canada. They make each two trips per month, passing through the Sault Ste. Marie Ship Canal. There are 110 vessels of other descriptions engaged in this trade.

The Sun's Radiant Heat—Remarkable Experiments.

The Engineering and Mining Journal contains a drawing of a "calorimeter" contrived by Captain John Ericsson, who says:

Preliminary experiments, conducted very carefully, having disclosed the startling fact that the real intensity of solar radiation marks a point on the thermometric scale several hundred degrees below the freezing point of water. I resorted to the expedient of concentrating the sun's rays by such a method that the degree of concentration could be accurately measured. Investigations conducted in conformity with this method of determining the true intensity of the radiant heat proved the temperature to be nearly identical with that shown by the preliminary experiments referred to. The extraordinary fact was accordingly established, that the intensity of the sun's rays before gaining by terrestrial radiation is so feeble that fluid mercury contained in an exhausted shallow vessel covered with a thin lense of about fifty inches focus, and exposed to the full power of a clear sun, will very rapidly become solid, provided the vessel is prevented from receiving heat from surrounding substances. It matters little whether the molecular action within the mass of mercury necessary to keep it in a fluid state is checked by the slower undulations of the solar ray, as waves of a rapid motion are checked by mingling with waves of less motion; or whether the molecular action within the mass of mercury is communicated to the surrounding cold vessel. In either case, the reduced molecular force within the freezing mercury proves the inadequacy of the action produced by the sun's rays to maintain the metal in a fluid state.

Incidentally the experiments thus instituted to demonstrate the feeble power of solar radiation before its intensity is augmented by the intervention of the earth's atmosphere have established the fact that the surface of the moon, being devoid of any gaseous envelope, is at all times, even under the vertical sun of the long lunar day, intensely cold.

I object to the inferences, which Pouillet, Mayer and others have drawn from our knowledge of the dynamic force of solar radiation on a given surface of the earth. Unquestionably the amount of heat transferred from the sun to the earth may be accurately computed by means of the solar calorimeter; but to infer from the point thus established that the sun parts with as great an amount of heat in all directions on an equal area as that which the earth during its orbital motion receives by intercepting and successively arresting the solar wave is a mere gratuitous assumption. The practical mind refuses to accept a theory which involves such a vast disproportion between the means and the end, as the assumption that 200,000,000 times more heat is wasted than that which is employed to animate the planetary worlds of our system, more especially as improbable and extravagant, not to say absurd, speculations which have been put forth by Mayer, Helmholtz, and others all fail to suggest any mode of supplying the assumed enormous waste which does not point to a speedy extinction of the central force.

The English wheat crop, it is estimated, will fall 6,000,000 bushels short of last year's, increasing the market for American grain.

The European War and its Influence upon the Trade of this Country.

There is great diversity of opinion as to the probable effect of the early adjustment of war differences in Europe on our trade with those countries, as well as on the national credit, as evinced in the prices of United States bonds. All our corporate securities, or nearly all, are reported without sale abroad. The activity that is likely to follow peace, it is thought, will create a demand for money, and to this end even Government bonds will be sent home and realized on, and thus narrowing the market, will lessen their prices. If the premises of this kind of reasoning were really conceded as true, such a result might be admitted. But there is no probability that there will be in any event an immediate demand for money there in the industrial pursuits. Our war was followed by moderately easy money markets all over the country, and there is no reason to suppose that it will be materially different with the warring countries of Europe. Much of property has been destroyed, and production in the meantime has ceased, but it is to be remembered that many consumers have been removed, and a much greater number so reduced in means as to necessarily narrow them to the smallest possible expenditures. Any change in trade interests abroad will be slow; not faster than the demand for consumption, with which the necessary capital will keep up without materially disturbing investment securities, paying so liberally and certainly as do our gold bearing bonds. It may be some time, before there is a demand for the more uncertain loans of companies, and those now held abroad are so generally out of credit here at home, that they would take little of our means away if they should be returned and sold. Peace itself, is still quite uncertain. There are thickening rumours of intended mediation between Prussia and France, and dispatches from London, Vienna and Tours point, with various degrees of definiteness, to the combined action of England, Austria, and Italy in favor of an armistice; but we see nothing in it all to justify the hope that this action will be of a character to extort respect from Prussia. A mere recommendation will amount to nothing. Prussia is too intent upon the accomplishment of a purpose to heed the proposals of outside Powers, under a leadership which shrinks from every thing but the most timid and harmless diplomacy. There is no peace yet, and when it comes, United States trade interests and United States credit will be all right.—*Public Ledger*.

THE INDIAN TERRITORY.—The Indian Territory lies west of Arkansas, south of Kansas, and north of Texas. It is the only spot on the broad continent which can yet be called Indian land, and it ought to be vigilantly guarded for them by the General Government, according to promise. The inhabitants are no longer hunters and warriors. They live by farming and stock-raising. If they fish and hunt at all, it is for recreation.

In the Cherokee Nation, the amount of ground seeded in corn this year is greater than it was last year, though less than it was before the war. It will probably reach 50,000 acres, which at 40 bushels per acre, will yield 2,000,000 bushels of corn. This must be a low estimate. Oats, wheat and potatoes are also cultivated to a sufficient extent for home use. The latter, particularly, grows well, and is a favorite vegetable everywhere.

The principal reliance of a Cherokee for an

income is upon stock—cattle and hogs. Before the war the number of both was immense. It cost almost nothing to raise them, and Northern buyers among us every spring gave good prices for all the surplus. Hogs were most profitable, though it took more work to prepare them for market. They only required to be fed six weeks or two months before killing; the rest of the time they were suffered to range in the woods.—*Cherokee Advocate*.

Results of Farming in Kansas.

We desire to show by facts and figures to the farmers of the Eastern States, some of the practical results of prairie farming in Kansas, collected and averaged from personal investigations and data, furnished by some of the most reliable and intelligent farmers in the State.

The following estimates include first payment on land and are also made upon the value of the labor performed, or at the price which a farmer would pay for the work, if he employed other hands:

160 acres railway lands at \$5 per acre	
First or fifth cash payment.....	\$160
House 1 story 2 rooms (estimated).....	200
Fencing.....	250
Breaking 80 acres at \$4.....	320
120 bushels seed wheat at \$1 50.....	180
Sowing and harrowing per acre \$1.....	80
Harvesting and stacking \$2 50.....	200
Threshing 2,400 bushels at 12c. bushel....	288
Drawing to market at 5c. a bushel.....	120

Total outlay.....\$1,798

RESULT.

The farmer receives for 2,400 bushels wheat sold at one dollar per bushel.....	\$2,400
His total outlay, first year.....	\$1,798

Giving net profit of.....\$602

These figures are no exaggeration. We know of many farmers who have done better through exercise of greater economy in labor and superior farming.

The present population of New England can not be less than 3,500,000. There has been a slight falling off in ten years in New Hampshire, and possibly Vermont; but the other four States have gained, and Massachusetts shows a gain of nearly 16 per cent. Maine and Rhode Island have gained rather less and Connecticut rather more than this percentage, and the percentage of gain in New England, as a whole, is more than 10. The area of New England is 62,116 miles, of which nearly a fourth part is uninhabited—so that the density of the population in the habitable portions is greater than almost anywhere in the country. Massachusetts with less than 8,000 square miles, has more than 1,425,000 people—showing a density to the square mile of 183, or greater than that of most European countries. And it is constantly increasing at a rapid rate. Within the last five years, the gain of population in Massachusetts has exceeded 30,000 a year, or four to the square mile.

MANUFACTURES OF GREAT BRITAIN.—The articles produced in Great Britain and Ireland, and exported from the United Kingdom during the last three years, amounted to the following values: In 1867 the exports of domestic products amounted to \$1,808,767,710; in 1868, to \$1,903,628,750, and in 1869 to \$1,944,915,900.

The returns published by the British Government show that the United States have now quite eclipsed Russia in the English wheat market, and forwarded to the United Kingdom more than a third of its whole supply. In five years the increase amounts to 123 per cent., the largest increase in proportion to the quantities sent having been in the import from the Southern ports on the Atlantic. For the present, the States return to the second place on the list of the countries who supply England with cotton—British India being still at the head.

—The earnings of the Union Pacific Railroad for September, as officially reported were \$728,520 93; expenses, \$286,158 08; net earnings, \$452,362 85.

—It has been decided to build the Union Pacific depots in Omaha, thus making that city the terminus of the road.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

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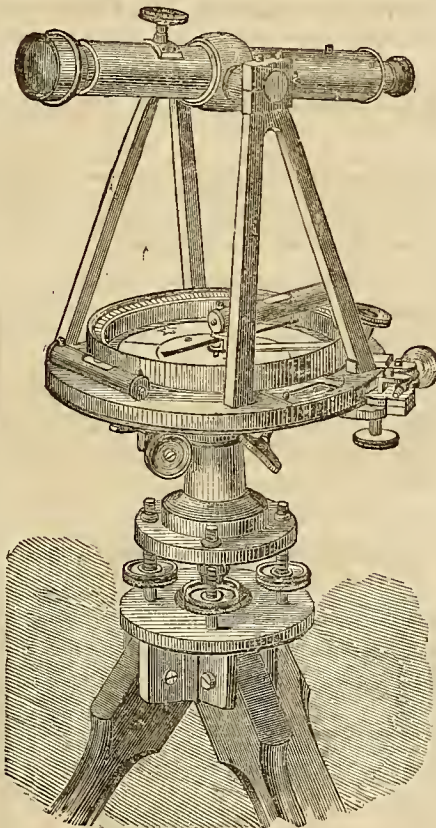
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The Railroad Record.

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T. WRIGHTSON, - - - - }
A. J. HODDER, Associate Editor.

CINCINNATI, THURSDAY, NOVEMBER, 17, 1870.

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Piqua, St. Mary's & Celina Railway.

Since our article upon this road in last week's issue of the RECORD, in which we gave our views of the purposes of this organization, and our objections to it, we have learned that this is a scheme entirely in the interest of the city of Piqua and that section of the country along its line that it is intended to serve; and that it is desired to be what is known as a narrow or small gauge road, adapted to the local business, we suppose of the Festiniog pattern, or something of the kind.

This statement of things changes our views entirely. We have long been the advocate of these narrow or small gauge enterprises, and have made the RECORD the avenue for communicating to the public all the facts and arguments that we could gather in favor of them.

The narrow track lines are undoubtedly the "coming railways" for all branches to and from main thoroughfares, and for avenues of local traffic. They are no longer experiments, having been thoroughly tested in various parts of Europe, and examined by the best engineers of the civilized world, and found to be all that can be desired from such works, and much more than was expected of them.

The best commendation they can have, is that every one yet constructed, whether in the hilly districts of Wales, or the level districts of the British kingdom, has proven a financial and practical success. Whilst roads of the larger gauge, heavier machinery, and greater cost, have failed, these have met the

requirements of the country and returned large profits upon the investments in them. To such an extent is this true, that capital flows readily into any meritorious narrow gauge enterprise in the kingdom, as soon as projected; whereas roads of the ordinary kind are subjected to the great expense of commissinns and discounts to coax capital enough into their coffers to secure a *poor* construction.

We know all about the troubles and perils of railway investments, and we believe we know the measures of reform that must be adopted before they will be productive. We have studied this question of the "gauges," and the battle of light and heavy machinery, and we are firmly convinced that the narrow gauge is the coming road—the paying road, and that will supply the growing demands of our country for railway facilities.

We are pleased to learn that the trial is to be made in Ohio. There can be no doubt about its success. We know the country well from Piqua to Celina and westward, and know that it offers peculiar advantages for the construction and support of such a road. Its cost is entirely within the capacity of the people directly interested in it, and they ought without delay to supply the means and push the work ahead. Their outlay need be but little or no more than what is necessary to construct a turnpike, and these are being made by the farmers all over the State, and yet this railway will be in all respects as valuable to the country through which it is to pass as though it would cost \$40,000 per mile.

In our last week's article we said, "Piqua is a beautiful place, the center of a rich section, a manufacturing point of importance, a thriving, enterprising, go-ahead city, and worthy of every improvement and all the business it can secure." Such a point will do for the terminus of a local road, such as the one proposed. At this point connections can be made with roads leading to Columbus and the East, with Indianapolis and all points West, and with Dayton and Cincinnati and all points South. This will give the counties of Auglaize and Mercer railway connections with all parts of the country. And when the road is constructed to Celina, and found to be what we assert it will, it will soon be pushed on to Ft. Wayne, and there connect with Chicago and the North-west and the western slope of the lower Michigan peninsula.

Push the work along. We bid it God speed

A NEW RAILROAD OPENED—The First Division of the St. Louis and Southeastern Railway, extending seventy-six miles from this city, crossing the Illinois Central at Ashley, Illinois, and running thence to Mount Vernon, was formally opened to-day, by an excursion, participated in by many leading citizens of St. Louis. The new road is substantially constructed in every respect, and well equipped, and is now ready for business. It runs through a rich and populous country.

The Stillwater Valley Railroad.

We notice from our exchanges that some of the people of Dayton are moving in this Stillwater Valley scheme, and we understand that certain influential gentlemen of that place have taken the matter in hand and are bound to push it through.

We are glad to hear this news and hope there will be no relaxation in the efforts of these enterprising men until they accomplish something substantial, and place the work beyond the talking and resolving point, where nine-tenths of the railway projects now-a-days stick.

This scheme is a good one, and if properly managed can be cheaply made and so located as to command a large and paying traffic.

There is a large area of country lying north-west of Dayton that is without railway facilities, and that is in such a state of development as to be of importance to any business center that can command its trade. Hitherto the trade of this section has been divided between Toledo, Dayton and Cincinnati, because it was about as convenient to one as the other, freights were about the same, and there was but little or no difference in prices. But the point that pushes a railway through this region will command its whole business and hold it against any competition that will be likely to seek it.

There is beginning to be a strife for the trade of this part of the country. A year or two since Toledo was considering the propriety of reaching down from some eligible point on the Wabash Valley road to Dallas, a point on the Bellefontaine road. It was then demonstrated by an able writer in one of the Toledo papers, that by this route Toledo would have as good an Indianapolis line as any she now possesses, besides controlling the growing business of the timber and agricultural counties of Williams, Defiance, Paulding, Van Wert, Mercer, and the north part of Darke.

Recently the enterprising little city of Piqua has been considering the propriety of making a small gauge railway into this section of country that can make a northern connection at Celina with the long contemplated road to the Straits. We speak more particularly of this movement in another part of this paper. It is a most commendable undertaking, and we shall be glad to see it a success.

But the Stillwater Valley scheme is directly in the interest of Dayton. It passes from that city, now a prominent railway center, up a most beautiful valley, well developed and rich as any part of the Miami country, touching the most important towns in its course, thence it should cross the ridge that divides the drainage of the Wabash from the Stillwater, continuing northwesterly until it intersects the old C. & M. line; thence it should take that road bed and bear directly northward,

reaching Van Wert, on the Pittsburg, Ft. Wayne & Chicago road; thence by sections to the crossing of the Wabash Valley, and so on into Michigan, connecting with the system of Peninsula railways.

Such a line will command the traffic of a larger belt of country than any other; it will be reasonably distant from competing outlets, and will be in the direct course for the trade of that northern section of country, that will sooner or later find its way southward.

What a stimulus this work will be to the business of Dayton. What a field for her manufactures. She is wise in moving in this project, and will be more so if she completes it and controls it for her own growth and profit.

At another time we may give our views of the best plan to build this road.

The Southern Pacific Railroad Company of Texas.

We have just received a most elegantly printed report of the affairs of this company for the year ending April 30, 1870, from which we make the following extracts and condensations.

The President of the company, Mr. W. A. Hauser, says:

"The present company bought and took possession of the road in May, 1868. While the sale might appear to have worked injury to many of the old stockholders, by causing them to lose their stock, yet, in point of fact, they lost nothing of value. Some of the members of the present company were the largest owners in the old one, and they lost theirs also in common with the rest. The sales of the road were public, and after full notice to all, and every person wanting to bid had the chance of doing so. Moreover, the road was sold for its full value. At the time of the sale it was very much in debt, and unable to pay, and the company had no credit either to borrow or to buy. The locomotives and rolling stock were worn out and unfit for use, and nearly every cross-tie on the road was rotten, and could not hold the spikes. The trestle works were all in the same bad condition, and it was very unsafe to run over the road. In many places it needed ditching very much, and sometimes the trains were as long as a week in making a round trip.

"About the very first thing you did after coming into possession of the road was to reduce the charges on the transportation of goods and merchandise. This you did to the extent of about sixty per cent. During the year from May 1865 to 1866, the earnings of the road from freight and passengers were but \$37,395 98; from 1866 to 1867, \$100,282-50; from 1867 to 1868, \$104,474 08; from 1868 to 1869, \$161,687 18, and from 1869 to 1870, \$284,133 86. The increase in the earnings is as great as ever, and since May last, the gross earnings for every month are two-

thirds greater than for the corresponding periods of last year.

"We have now two new, large, powerful locomotives, which will draw forty loaded cars over the road, and three others which are as good as new, and also between forty and fifty freight cars, and a new baggage car, all built in our shops here, and which will compare favorably with any on the best roads. We have also two fine passenger coaches, a large round house, blacksmith and carpenter shops, and a large machine shop with all the necessary tools, in which we can not only repair but rebuild an engine. The road bed is also in excellent condition, and trains could safely run over it at a speed of fifty and sixty miles per hour, while at one time in the history of the road, accidents, delays, and trains off the track, were the usual orders of the day. It is very rare now that they ever occur. In short, the road and its equipments may be well set down as of the first class. In May, 1868, by the purchase aforesaid, you acquired a road forty-two miles in length. During last summer and fall, you built fourteen miles more to this place, and in a month or so there will be ten miles additional west of this to Longview, in Upshur county. The contractor has a large force at work and is anxious to complete it. The road is at present fifty-six miles long, and when finished to Longview will be sixty-six. By the laws of this State we are entitled to sixteen sections per mile, or 10,240 acres of land for every mile of road we build. When the road is finished to Longview we will be entitled to 198,400 acres of land under said laws, and will apply for the same. The road and appurtenances, with its chartered rights and franchises, is worth over two and one half million of dollars, and is owned by 6861 shares of stock at \$100 per share.

"The road owes no debt except that due the State of Texas for money borrowed of the special school fund, and amounting, principal and interest to about \$222,000. This is secured by a mortgage on the road. By an act of the late Legislature, the debt was funded, and the time of payment extended indefinitely upon condition of semi-annual payments of the interest, 1st November and 1st May, and two per cent annually to the Sinking Fund. For the purpose of extending the road to Hallsville and Longview, various sums of money were borrowed at one and two years, chiefly of the stockholders, amounting to \$209,270 20. To these several lenders the notes of the road are executed.

"It may be proper to observe that the line of our road, the thirty-second parallel, is the favorite and popular southern route to the Pacific Ocean throughout the entire country, North and South, and indeed it is the only one which, by its connections, could be truthfully called the "Southern Pacific Route," and when completed can afford to carry

freight and passengers at one-half the rates now charged on the northern roads to the Pacific.

"The Legislature of the State at its last session, passed by more than a two-thirds vote in both houses, a bill for the benefit of the company, thus showing the friendly spirit of that body. This bill, however, failed to become a law, owing to certain objections of the Governor of the State. I have no doubt, however, but that at the next session such a bill will be presented as will command the cordial support of the Legislature as well as of the Governor.

"Our line of road is also evidently the favorite route of the Congress of the United States. During the last session of that body a bill passed the Senate called the Texas Pacific, authorizing the company to build a road from Marshall to San Diego, on the Pacific, via El Paso, and along our line. It makes the same donations of land, and grants the same rights and privileges as were given to the Union Pacific and Northern Pacific Railroads. That bill is on the Speaker's table in the House, and liable to be taken up and passed in an early part of the next session of that body.

"The members of Congress generally seem to think it right and proper that a Southern road to the Pacific Ocean should have the same Government aid and assistance as was given to the roads from the middle and northern States. As a principal of law and right, no road chartered either by a State or the United States can run over the line of our road without our consent, and as it is the wish of that body to have such a road built, there can be no doubt that we would be the beneficiaries of such a charter if the members of Congress could be made acquainted with our ability and the certainty of our building the road."

The Superintendent of the road, Mr. John F. Dickson, in his report says:

"Our total earnings for 1868 and 1869 were.....	\$161,687 18
For 1869 and 1870 they were....	284,133 86
Making an increase of.....	122,446 60
Our working expenses were.....	123,460 81
Leaving a net balance of.....	160,673 05

"The organization of a competent bridge force was a necessity, and was promptly done. Our trestles have been thoroughly overhauled, and are now safe and substantial.

"We have had to spend a good deal of money in ditching and widening cuts, but much remains to be done.

"One mile of new rails, of the fish-bar pattern, has been laid east of Marshall. The best of the old rails were used in replacing defective ones along the line, and these again were used in making sidings at the several stations.

"Our business was much interfered with for the want of these sidings, having had to keep trains waiting on the main track while we

loaded cotton or unloaded freight. This defect is now obviated at all points except Scott's, new sidings have been put in, and at Scott's we will have one ready for the cotton season.

"We have put in twelve miles of "continuous lip" chair, together with some 10,000 cross-ties, all of which adds much to the safety of your road, but necessitated an increase of expense over previous years.

"While I have built with a view to convenience for having work done with dispatch and economy, I have also guarded against undue expense. The shops, therefore, while being substantial, are the reverse of costly. The round house, for instance, cost \$300 per stall—accommodations for five engines costing us \$1,500. The Louisville and Cincinnati round house cost \$2,000 per stall, or \$36,000 for house room for 18 engines, while the stalls of the Pennsylvania Central averaged \$4,000 each.

"Our equipment now consists of five locomotives, fifteen flat cars and twenty eight box cars, with trucks and irons for twenty-eight more; one new baggage car, and two passenger cars.

"Our passenger travel last fall was very large, and proved our capacity totally inadequate to the demand upon it. We have not had time to build any passenger cars this summer, the freight cars being needed most, and our force of car builders somewhat limited. By next summer we will be fully prepared for all that may offer. We carried in 1869, 20,765 persons; in 1870, 38,871 persons—being an increase of 18,106, or nearly 100 per cent.

"With regard to the working expenses of our road, I would say that while they compare favorably with other roads, yet even were the cost much more, we would still be excusable for the outlay. Much of the expense, instead of being charged to "Maintenance of Way," might with more propriety be charged to "Construction." We now line and "tamp" up stretches of track that go down with the first rain, instead of remaining good for many months, and all for want of ballast. We have paid for the past year about \$1,000 per mile, for "track repairs," or not quite twenty per cent. of our gross earnings. The Louisville and Cincinnati Railroad spent thirty-eight per cent. on theirs, and the Louisville and Nashville, with all the advantage of cheap labor, spent \$900 per mile, while their average for the past nine years has been \$1,373.31 per mile.

"If the same ballast that is found in such quantity along the line was properly distributed, instead of having to pay out \$50,000 per annum for track repairs as we now do, the same work might be easily done for \$25,000 or \$30,000.

Our net earnings were..... \$3,213 per mile.
Louisville and Nashville..... 2,732 "
Louisville and Cincinnati... 1,731 "

We have carried 27,392 tons of freight "

RECEIPTS SOUTHERN PACIFIC RAILROAD COMPANY
FOR THE YEAR ENDING APRIL 30th, 1870.

From passengers.....	\$ 74,097 90
From freight.....	196,467 55
From mail.....	3,574 16
From mis. sources...	9,994 25

Gross earnings.....	\$284,133 86
Exp. 45½ per cent	123,460 81

Net earn for year end.

April 30, 1870.....	\$160,673 05
Rec. year end. April 30, 1868.....	\$104,474 08
Rec. year end. April 30, 1869.....	161,687 18

Per cent of increase	45 6-10
Rec. year end. April 30, 1869.....	\$161,687 18
Rec. year end. April 30, 1870.....	284,133 86

Per cent. of increase	75 7-10
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During five months of the year 1869-70 the company operated fifty-six miles of road, in place of forty-two miles in previous years.

The officers of this company are W. A. Hauser, President; Volney Hall, Vice President; A. T. Smith, Secretary; John F. Dickson, Superintendent; Geo. R. Wilson, Chief Engineer. Directors, J. Monks, W. C. Hall, John S. Long, W. C. Hite, J. M. Barbour, W. A. Hauser, Volney Hall, B. M. Johnson, J. N. Howell, J. W. Howard, W. T. Scott, A. M. Burpham, Chas. Cobb.

Chas. Cobb, *Secretary Louisville Board of Directors.*

"We take pleasure in inserting the following announcement from our old friends Messrs THOMAS PROSSER & SON of New York, whose enterprise and energy seems equal to any emergency :

Cast Steel Works of Fried. Krupp,

ESSEN, RHENISH-PRUSSIA.

American Office, 15 Gold Street, New York.

We take this opportunity to announce to our friends that our business suffers no interruption from the war in Europe. We are receiving goods from Essen regularly as usual, at ante-war prices.

During the war, our goods will come out in Neutral Steamers from Neutral Ports, so that our customers need not entertain any fears about delay in delivery of orders.

We make this statement in order to remove a misapprehension which appears to exist in the minds of some of our customers, caused mainly by the fact of the German Steamers having stopped running regular trips, in consequence of the blockade.

THOMAS PROSSER & SON,
Sole Representatives in America of

FRIED. KRUPP.

November 7, 1870.

A New Railroad in the Miami Valley.

We clip the following from the *Gazette* or yesterday, and have only to say upon the subject at present that this is undoubtedly a correct movement on the part of the Pennsylvania Central Co., and that the wonder is that this missing link has not been supplied long ere this:

A railroad rumor was in circulation, yesterday, which, though it may not be entirely true, is of considerable importance. It is to the effect that the Pennsylvania Central Railroad had determined on building a railroad from Deerfield, on the Little Miami Railroad, to Dayton, via Lebanon and Centerville. This suggestion is not a new one. The road has been regarded as among the probabilities by some persons for many years, and has, it is known, been somewhat considered by gentlemen in the interest of the Little Miami Railroad and the Pennsylvania Central. It is an important proposition, inasmuch as the road has not only great local advantages connected with it, but would also become a connecting link that would perfect a general system.

At present, to reach Dayton from this city by the Pennsylvania Central, it is necessary to go by way of Xenia. The new line would approach Dayton by following the hypotenuse of a right angle triangle instead of pursuing the other two sides. To Deerfield, by the Little Miami road is thirty-two miles instead of twenty-three, as published yesterday in the *Dayton Journal*.

From Deerfield to Dayton, according to the *Journal*, it is twenty-six miles, making the total distance fifty eight miles, two miles less than by the Cincinnati, Hamilton & Dayton, with the probabilities of a material reduction in the distance by the proposed straightening of the Little Miami road. It would be a road easily built, on the uplands of the Miami Valley, away from all considerable streams, through a beautiful and rich country, and, besides, would pass through the great Centerville white limestone fields, which are of the greatest local importance.

But there is another feature connected with this movement, which is more general, as well, perhaps, as more important. It is that the building of this link of about twenty-six miles would furnish another direct route to Chicago and the north-west via Dayton, Union and Logansport. The Dayton & Union road, forty-seven miles in length, would at once rise to importance, and would, of course, favor the movement, while the road beyond is already controlled by the Pennsylvania interest.

But this new route to Chicago is not all. The road west from Logansport to Galesburg is already, if we mistake not, in the same interest. So that this would immediately open a direct route to Omaha and the eastern terminus of the Union Pacific, by way of the Burlington & Missouri River Railroad from Burlington, Iowa, to Omaha.

POPULATION OF CITIES—The recent census reports the population of Xenia, Ohio, at 6,337; Nashville, Tenn., 25,880; Fond du Lac, Wis., 12,777; Atchison, Kansas, 7,064; Corry, Pa., 6,817; New Bedford, Mass., 21,232; Lynn, 28,231; Haverhill, 13,100; Galesburg, Ill., 11,038; Columbus, Ohio, 31,336; Washington, D. C., 111,195; Cleveland, Ohio, 92,985,—a gain in ten years of some 50,000; Cincinnati, 215,000.

Cincinnati and Springfield Railway.**DIRECTORS AND OFFICERS ELECTED.**

Pursuant to notice, a meeting was held on the 14th at No. 31½ West Third, in the office of the Cincinnati and Springfield Railroad Company, of subscribers to the capital stock of the same, for the purpose of electing Directors and duly organizing in accordance with law. There were 10,100 shares of fifty dollars each, voted for the following gentlemen for Directors.

Horace F. Clark, of New York, President of the Lake Shore and Michigan Southern Railroad; James M. Marvin, of Saratoga Springs, a Director in the New York Central Railroad; J. H. Devereux, of Cleveland, Vice President and Manager of the Lake Shore and Michigan Southern; Selah Chamberlain, of Cleveland; Oscar Townsend, of Cleveland, President of the Cleveland, Columbus, Cincinnati and Indianapolis Railroad; L. M. Hubby, of Cleveland; R. M. Shoemaker, Seth Evans, and J. M. Kinney of Cincinnati.

The Board of Directors organized by electing R. M. Shoemaker President, and Murray Shoemaker was appointed Secretary.

Some of these are strong names, but we have seen them before, and in about the same arrangement and then they amounted to nothing.

We hope it will be better this time.

The Union Railroad Depot.

The magnificent depot now in course of construction at Forty-second street and Fourth avenue for the accommodation of the Harlem and New Haven Railroad, when finished, will surpass in size and grandeur anything of the kind in the United States, if not in the world. The expense of erecting and finishing this mammoth structure will amount to nearly \$3,000,000. It is to be constructed of iron and brick, with stone trimmings and facings, and will be perfectly fire-proof from attic to cellar. It will have a frontage on Forty-second street of 240 feet, and a depth on Fourth avenue of 700 feet. The arches are to be all of cast iron of great strength, and were cast and put up by a leading firm in this city. The engineers, mechanics and laborers employed on this building at the present time number about 3,000, who are using every effort to complete the building and have it ready for occupancy by January 1st, 1871. The basement of the building is to be set apart for restaurants of the first order, which will be really a great accommodation to travelers by these roads. The first floor will be fitted up as waiting and retiring rooms for ladies and gentlemen, together with ticket offices, baggage rooms, etc. The second floor will be used for the offices of the company, and will be fitted in a style surpassing in elegance anything ever attempted in this line, not excepting the princely offices of the Erie, third story and top floors are to be used for railroad stores, and will be very commodious. The roof is to be of solid curved iron, and is being set in position as rapidly as needed. This building is intended to be an ornament to the city for all time, and if finished according to the plans certainly will be. The clock-towers, of which there are to be two on Forty-second street, will be, when completed, 130 feet high.—*New York Daily Bulletin.*

Ohio Railroads.

We give below a condensed exhibit of the coming report of General George B. Wright, Railroad Commissioner for Ohio.

The report promises to be the most valuable and interesting yet issued from this department:

Marietta and Cincinnati Railroad, amount of capital stock paid in, \$14,620,865; amount stock per mile, \$52,821. Total funding and floating debts, \$7,996,096. Increase of debts since June 30, 1869, \$739,100. Total amount of debt and stock, \$22,616,962. Total cost of entire road and equipments to June 30, 1870, \$20,622,750. Length of single main track laid with iron, 190 8 10 miles; length of branches, 86 miles; sidings, &c., 40 miles. Total length of iron, 316 miles. There are on the road 55 wooden bridges, with an aggregate length of 8,701 feet; 3 stone bridges with length of 90 feet, and 264 wooden trestles with length of 31,195 feet. There are on the road 52 locomotives, 24 passenger cars, 14 express and baggage cars, 618 freight cars, and twenty-three other cars. Total number of persons employed in operating the road in Ohio, 2,478. There were carried during the year 339,245 passengers, 109,605 tons of through freight, and 282,738 tons of local freight. The earnings for the year are \$1,381,935; operating expenses, \$1,382,093 89; deficit of expenses over earnings, \$157 87; amount of damages paid, \$6,634 89.

T Toledo, Wabash and Western—Total amount of stock, \$8,500,000; increase of stock since June 30, 1869, \$1,500,000; amount of stock per mile of road, \$6,134 78; proportion of stock for Ohio, \$1,231,765 89. Total funded debt, \$15,000,000; no floating debt; amount of debt per mile of road, \$28,790 78; total stock and debt, \$25,500,000; total amount of stock and debt for Ohio, \$3,405,470 53; total cost of entire road and equipment up to June 30, 1870, \$23,500,000; cost of road and equipment per mile, \$45,105 57; length of main line, 476 miles; length of branches, 45 miles; length of single main track in Ohio, 75½ miles; total length of road in Ohio, 85½ miles. There are on the road 15 locomotives, 50 passenger cars, 29 express and baggage cars, 2,177 freight cars, and 78 other cars. Number of persons employed in operating the road in Ohio, 725; number of passengers carried, 665,234; tons of through freight, 253,726; tons of local freight, 541,314; earnings for the year, \$3,946,242 85; operating expenses, \$3,354,442 75; net earnings, \$591,800 10. Total payments in addition to operating expenses, \$1,832,472 68. Total receipts from earnings and all other sources, \$5,186,916 43. Operating expenses and other payments, \$5,186,915 43.

—It is estimated that, in round numbers, 110,000 tons of steel rails, equal to 1,100 miles of steel road, were laid in the United States up to the close of 1860. These rails are in use on more than 50 roads, chiefly of English, partly of American, and some of Prussian manufacture.

—The earnings of the St Louis and Iron Mountain Railroad during the month of October, 1870, were \$127,069, against \$33,197 in October last year, on the same number of miles in operation.

Baltimore and Ohio Chicago Extension.

In a general article on the proposed Western connections of this Co. in our issue of Sept. 15, we spoke of Chicago as the objective first claiming attention. This, we stated, was the principal occasion of Mr. Garrett's visit to this city; and it is proposed to accomplish it by building a line from Pittsburg to Chicago, between the P, Ft W & Ch. R., and the Lake S. & M. S. R. A lively interest is manifested in various localities along different practicable routes; delegations being appointed to urge their respective claims, and surveys made by local subscriptions. The object was to have the proposed line to diverge as to take in the several towns adjacent thereto, and thus create a local rather than a through line.

The readers of our article above referred to, in which we gave an authoritative statement of Mr. Garrett's policy in relation to new lines in connection with the road, will not be surprised to learn that the preference of that Co. is for the shortest line,—which is that known as the Air Line, located as we have described. While almost all our great Western lines derive 75 per cent. of their earnings from local traffic, there are peculiarities about the projected extension of the B. & O. R. (shared, in greater or less degree, by the other Eastern Trunk lines,) which render the shortest possible cut the chief desideratum.

In recognition of this fact, at a meeting of the Board of Directors of the Chicago Board of Trade on Monday afternoon, S. H. McCrea, Esq., presiding,—the following preamble and resolutions were unanimously adopted:

Whereas, This Board has learned that the project of opening a new line of railroad from this city to Pittsburg, to connect at that point with the Baltimore & Ohio Railroad, has assumed features that mark it as a success; and

Whereas, This Board are evidently of opinion that such line should be as near an air line as possible; and,

Whereas, From a recent map of the proposed route, published by authority of the Baltimore and Ohio Railroad Co., it appears that an almost air line from the head of Lake Michigan to Akron, O., is in contemplation by that Co., the said line passing through territory about midway between lines now in operation, and passing near or through Albion, Auburn, Ind., and Defiance, O., securing easy grades and a good local traffic; therefore,

Resolved, That this Board most emphatically endorses such proposed route, as being the most desirable of any projected, and, as the securing of an air line is to this city of the first importance, we earnestly recommend the adoption of the line as marked out on the map referred to.

Resolved, That while this Board most heartily sympathizes with the original conception of the enterprise to shorten the distance over existing routes, they believe that such distance should be made the shortest possible and practicable.

Resolved, That the President of this Board be instructed to communicate a copy of these resolutions to Hon. Jno. W. Garrett, President of the Baltimore & Ohio Railroad.

We stated in the previous article that the estimated cost of this road, for which a favorable route is practicable, is \$9,000,000. Of this, \$2,000,000 will be contributed by the owners of the B. & O. R.; it is expected that the people along the line will raise \$3,000,000; and of the remaining \$3,000,000, Chicago ought certainly to provide a liberal share, and there would now seem to be promise that she will do so.

Economy of Narrow Gauge Railways.

The two feet gauge railway in north Wales, constructed for the purpose of transporting slate and stone to the seashore, is now used as a regular goods and passenger line. The traffic it is asserted, in consequence of the diminished expenses of construction and working, yields a revenue of thirty per cent on the capital. The reason assigned for this large amount of earnings is, that the proportion between the dead weight and the paying weight is much less than on other railways. Thus, the engine and tender weigh ten tons, against forty tons on wide gauge roads. The carriages on the Welsh road, transporting twelve passengers, weigh thirty hundred weight, or two and a half hundred weight per passenger, while the broad gauge carriages, transporting thirty-two passengers, weigh seven and a half tons, or nearly five hundred weight per passenger. The *London Railway News*, in commenting upon this two feet gauge, asserts that "its economy and efficiency will cause it to be extensively adopted." Why should not this description of railway economy find favor in this country, especially in the construction of branch lines of roadway to points and through regions naturally limited in the amount of their business? We have in mind several instances in which much capital has been sunk in railway construction, not because railways were not important nor needed where built, but because they were conducted at too great a cost for the business at the time to be accommodated. Whereas if roads had been constructed embracing the principles of economy suggested in the "Two Feet Gauge Railway of North Wales," they would not only have paid fairly on the capital invested at the beginning, but have gradually developed the region penetrated, to the great advantage of the neighborhoods as well as the main lines of railroads from which they were branched and were to be tributary. In the immediate vicinity of Philadelphia there are several well-known cases in point. We need but name the Old Chester Valley Railroad, an extension of the Norristown Railroad to Waynesburg, which swallowed all the capital put into it; The Ebensburg road, and the old West Chester Railroad, branching from the Pennsylvania Railroad, less disastrous, perhaps, but both working a similar result. Some trunk lines were guilty of the same error. The North Pennsylvania cost the amount of its funded debt more than it should have done for the amount of business it had at the time and the then near future to accommodate. The withholding of unnecessary capital invested in its construction would have enabled the shareholders to receive dividends steadily from its completion, and the company could have increased its capacity to a gradually developing business. A cheaper road from Camden to Atlantic City than was built would also have shown more wisdom. A dozen others might be mentioned, all demonstrating the same fact, that too much money was expended in advance of the development of business; the mistake being that the roads were made to create the business necessary for their support, rather than to accommodate business in freight and passengers already in existence. A branch road from the West Jersey Railroad to Swedesborough, some ten miles long, just put in operation, is another instance in which the cheap principle in railway construction on some similar plan to that mentioned in North Wales might have been advantageously followed. It is contemplated

to ultimately extend this branch to various towns five to fifteen miles further south, which, if done on the cheap principle suggested, may not only pay on their own immediate lines, but make the branch already constructed pay on its cost. The day, we believe, is not distant when cheap railroads will be as common all over the country as common wagon ways were half a century ago.—*Phila Ledger*.

Color-Blindness in Railroad Employees.

To Dalton and Herschel belong the credit of first directing attention to persons suffering from color-blindness, who may even themselves be in happy ignorance of the fact, because of this peculiar condition of vision not necessarily defecting the eye or interfering with the ordinary requirements of sight. We understand that those practitioners who examine men for employment upon railways and who take trouble of testing whether the person before them suffers from color blindness or not, discover it no unusual fact to find them erroneous in recognizing certain color rays, and that the shades wherein most err are red, yellow, green and blue—the red being mistaken for yellow by some, the yellow for green, the pale green for cloudy white, and the blue for black, the very shades upon which all persons working upon or connected with railways, or holding situations wherein colored lights are employed, as in vessels at sea or light-houses, should be perfect in, as a mistake might prove disastrous to many. Indeed, very few persons are perfect in their color vision. Dr. Wilson, who is an authority on the subject, states that one person in every eighteen is color-blind in some marked degree, and that one in every fifty-five confounds red with green. Any one of this fifty-five must needs be a dangerous person if entrusted with the working of colored signals; accordingly it behooves railway companies to test periodically through their medical officer, the condition of vision in detecting colors of their operatives, for if color blindness exists we know education of the eye or treatment will not improve it. We know a gentleman who always recognized light red as violet, and when lightning existed in the atmosphere the flash assumed a violet hue to him. Men, then, who pace the deck of a steamer on watch, signal workers, and railway guards should be even above suspicion of being color-blind, for an obvious reason, and to avoid danger their efficiency should be properly tested.—*Medical Press and Circular*.

STEEL TYPE.—According to the specifications in the patent just taken out by Mons. Bauer, of Paris, the machine for making steel types is similar to that for making pins or nails; a roll of wire being placed on a reel, the machine tips off a piece of a given length and forces one end of it into the steel die. Fine soft iron wire drawn to the shape of the body of the type is used for the purpose. After leaving the machine, the types require trimming by hand. When this has been effected, they are placed in metal boxes with the materials used for hardening, and are heated to a proper temperature in a furnace. The inventor says that, with a single machine, and steam to the extent of one nominal horse power, he can produce 35,000 types in 12 hours, and that while the faces are far more perfect and more durable, the types themselves are cheaper than those in general use. There remain, however, the objections of over sharpness and rusting.

American Product of Gold and Silver.

Notwithstanding the large exports of gold and silver during 1869 and 1870, the supply of the precious metals is considerably larger, through the steady rate of production, than at the corresponding period last year. It is evident that we have the ability to resume specie payments without much longer delay. The estimated production of gold and silver in the United States in 1869 is stated by the Commissioner of Mining Statistics, upon a bullion basis, at \$63,500,000, distributed as follows: California, \$20,000,000; Nevada, \$14,000,000; Oregon and Washington Territory, \$4,000,000; Idaho, \$7,000,000; Montana, \$12,000,000; Colorado and Wyoming, \$4,000,000; New Mexico, \$500,000; Arizona, \$1,000,000, other sources, \$1,000,000. There has been a considerable falling off in the product of the placer mines of California, Oregon, Idaho and Montana, but this has been more than met by the increase arising from quartz mining. This fact goes to prove the necessity for the introduction of proper machinery and scientific knowledge into the mining regions. Placer mining bears about the same relation to quartz mining that primitive systems of agriculture bear to the scientific methods of modern times. Quartz mining is the hope of our future bullion supply. Scientific schools are graduating accomplished engineers. The moment they are seconded by capital this kind of mining will receive an impetus never before experienced. Well educated men, who have ability to prospect and locate mines, direct operations, employ machinery, and attend to every detail, will invite an influence to the gold-bearing regions which has hitherto kept aloof. The day is fast coming when the paper corporations, that actually prevent development by their imaginary claims, will pass away, and actual corporate energy will be substituted. The government has been importuned to establish a National school of mining and metallurgy, but it has thus far refused. Some of our colleges, however, have taken the matter in hand, and the country will profit by the knowledge thus disseminated.—*Shipping list*.

LIABILITY FOR FIRES FROM LOCOMOTIVE SPARKS.—The following were the instructions of the Superior Court of Chicago in the case of *Christian Weldt vs. the Pittsburg, Cincinnati and St. Louis Railway Company*, where suit was brought to recover the value of hay alleged to have been burned upon plaintiff's farm, by emission of sparks from a locomotive, negligently allowed. The court instructed that if the hay was the property of the plaintiff, and that it was destroyed by fire communicated from defendant's locomotive, which was upon its right of way, there being no negligence on the part of the plaintiff then negligence is chargeable upon the defendant, unless defendant affirmatively prove that it used, as far as possible, all means to prevent the injury; wherefore if defendant permitted weeds and grass, after being cut, to lie along its right of way, which communicated fire, which destroyed the property, then there is a liability. The corporation, is, moreover, bound by law to use all mechanical appliances used by like organizations to prevent the spread of fire from its locomotives, and, in default, it may be liable for damages resulting. But a railroad company has a right to use fire for the purpose of generating steam, and is not liable for injuries unavoidably produced by keeping up such fire, if, however, proper care is exercised in the construction of the ma-

chine and in the use of the fire. So, if the particular engine had the most approved appliances, was in good repair, and was properly used, and if otherwise due diligence was used to prevent injury, then there could be no recovery.

Railways are fast encompassing the world, and are, indeed, the heralds not only of active commercial enterprise and prosperity, but also of advanced civilization. Last spring a new railroad was opened in India, which, foreign journals say, promises to materially affect the relative standing of two of the chief cities. This road, as we learn, connects Bombay with Calcutta, the capital of India. The distance is nearly fourteen hundred miles, and is made in sixty-two hours, which is a little over twenty-two miles per hour. The fare for first class is about \$75. A great rush of passengers through Bombay to all parts of India has commenced, and the road will soon possess an important attraction by the introduction of American palace cars, which will vastly add to the comfort of travel. This road traverses the principal cotton districts of the country, and Bombay must become the cotton port for the large European trade. This will materially affect the prosperity of the capital, Calcutta, and prognostications are very freely indulged in that she will pale fast before the rising glory of her rival on the Sea of Araby. Railroad development has proceeded very actively in India for some years past, and, of course, has most essentially benefited the country. It has made accessible quarters that were previously quite shut out from the world for lack of transport, and has increased cultivation considerably, and brought increased wealth to the people. Another new road, called the Chord Line, will be available for traffic shortly, and will open up a country teeming with mineral wealth and agricultural resources. Others, on both the great Indian and East Indian lines, are being pushed into districts where the name of a locomotive heretofore was scarcely known.—*Philadelphia Ledger.*

A remarkable physiological discovery has been made regarding the properties of marrow. M. Gonjon has won the prize of five hundred francs, granted by the French Academy of Sciences, for demonstrating that the marrow of bones has the same power of reproducing bony substance as the periosteum—that engrafted elsewhere in the body it possesses the extraordinary quality of reproducing bone, as the author showed in the rabbit, in which bone had been made to grow under the skin by the transplantation of some of the animal's marrow. There would seem from this to be some danger attending the use of marrow as a salve or a pomade for the hair. A little abrasion of the skin might permit the planting of marrow enough to produce a bony protuberance—in other words, a horn.

The *New York Technologist* describes a new contrivance for preventing people looking into a room while light is not excluded. It consists of a number of glass rods arranged either vertically or horizontally, and secured together by appropriate frames, forming a series of cylindrical lenses, which break up the light and throw it into every part of the room, thus producing a soft and diffused glow which is very beautiful and pleasant. The glass rods may be of any color, and by an arrangement of the colors very beautiful effects can be produced. The contrivance is the invention of Mr. Demuth.

A very simple mode of preventing boiler incrustations is in general use at the Darmstadt Gas Works. The engine has worked night and day since 1854, almost without interruption, and the formation of calcareous deposits has been entirely prevented by the use of crude pyroligneous acid, combined with tar; it is either introduced into the boiler or mixed with the feed water. Since this mixture has been in use they have never had to use a hammer to remove scale. Each year, during the summer, when less gas is required, the boiler is opened and perhaps a couple of handfuls of loose sediment taken from the bottom. The quantity employed is very small—just enough to reddens litmus paper; consequently the iron is not attacked, as indeed is apparent from the fact that the boiler has been but twice under repair.

RAILROAD GAZETTE.

The Railroad Man's Paper.

Illustrated Weekly Quarto Journal, 24 Pages. **R. R.** News & Operation, Engineering, Reports, Management, Advertising. A. N. KELLOGG, Publisher. TERMS: \$3 per Annum. 101 Washington St., Chicago. Will be Four Dollars after January 1, 1871.

THE FIRM OF WM. J. YOUNG & CO.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27



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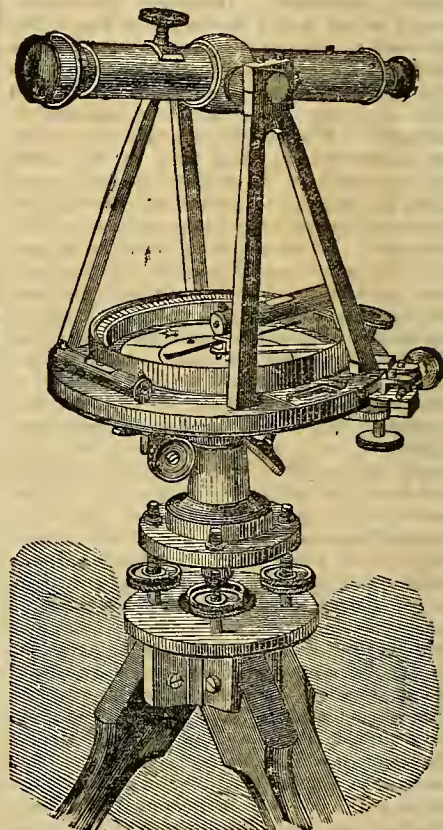
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The Railroad Record.

E. D. MANSFIELD, - - - - }
T. WRIGHTSON, - - - - } Editors.
A. J. HODDER, - - - - }

CINCINNATI, THURSDAY, NOVEMBER, 24, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

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WRIGHTSON & CO., Prop's.

Cincinnati—Its Wealth and Prospects.

We spoke recently of the attempted bridge on the Ohio and the real points of the case. We say *attempted*, for, although the Company has nearly completed the bridge, there is some prospect of tearing it down, if the belligerent propensities of the Chamber of Commerce and the learned Judge Fox are to control. However—while we are writing, the Chamber of Commerce, the lawyers and the Bridge Company should fight it out on that line if it takes all winter—we have expressed our opinion that the bridge ought to be raised, more for the interest of the Railroad Company than of the City. With the present short curve and high grade to the bridge we can not imagine it to be very safe, or profitable. This subject, however, brings us to the condition of Cincinnati.

To bridge the Ohio near the foot of Broadway was earnestly discussed forty years ago. As suspension bridges were then unheard of, there seemed no recourse but a drawbridge. Accordingly, the plan was to build a bridge on piers from the foot of Broadway to the mouth of Licking, and thisto answer for both Newport and Covington. Raising it high enough for boats to pass under was never thought of; on the contrary, the plan was an old-fashioned bridge on piers with a draw. The men of that day—although with much more enterprise and far more sagacity than the men of this day—never thought of objecting to a draw. But we only refer to this as one of the incidents in the present state of Cincinnati. The fact is, that Cincinnati is at present without ruling minds of sagacity and

liberal spirit. No liberal enterprise is set on foot without meeting a selfish opposition, instead of a liberal support and generous encouragement. But in spite of this Cincinnati has grown immensely in wealth, and, taking both shores of the river together, in population and extent. The census shows 220,000 in Cincinnati, and doing business on both shores 250,000. Although this is not the rapid increase of some western cities and towns, yet it is a solid and real growth, making Cincinnati still what it must be, the great controlling center of commerce and manufactures in the Ohio valley.

The assessed valuation of Hamilton County (of which Cincinnati is nine-tenths) is returned by the Assessor as follows:

Real Estate.....	\$181,440,530
Personal Estate.....	67,733,574
Total.....	249,174,104

The *actual value* is returned to the Government at \$270,000, which is probably under the truth. In the Auditor's report for 1869, the valuation of real and personal property in Hamilton County was returned thus:

Real Estate.....	\$ 95,458,390
Personal Property.....	71,178,500
Total.....	166,636,890

The actual valuation of Hamilton County returned in the census of 1860, was as follows:

Real Estate.....	\$100,342,212
Personal Property.....	36,776,430
Total.....	137,118,642

It will be observed that the increase of the value of real estate returned by the Auditor in 1869 was nothing, or rather there was a decrease, but the increase of personal property was nearly doubled—100 per cent. The reason of this is that no revaluation of real estate was made by the State from 1860 to 1870, and the census returns of 1860 is of *actual value*, while the Auditor's were of the *assessed value*. This accounts for the real estate discrepancy; but the personal estate—money, merchandise, manufactures, etc., etc.—is *revalued* every year and constantly increasing. The valuations given above for 1870 are those of the Assessors, with 8 per cent. added for the *true value*. We may safely assume that the actual value of Hamilton County is \$270,000,000, which is 62 per cent on the valuation of 1860.

In the census return of population Cincinnati has increased 35 per cent. In the returns to the Board of Trade in Cincinnati, we have the increase of manufactured products doubled, or 100 per cent. We have the total increase of people and industry of Cincinnati to be as follows:

Inc. of population.....	35 per cent.
" manufac'd products 100 "	
" value in property... 62 "	

This is a very good showing for any city, East or West. If Cincinnati were to increase

the next ten years at this rate the results in 1880 will be,

Population	300,000
Products of manufacturers.....	\$240,000,000
Valuation of property.....	430,000,000

It will be well to put these figures on record that some one in 1880 may look at them. But we say, that Cincinnati in the next ten years ought to do much more than this, and probably will, for, in that time, she will probably be able to force through the Southern road and its connections; then let us "harp upon our daughter" a little.

It will be seen that the increase of *commerce* proper has been little in this city. We have not compared the returns made to the Chamber of Commerce, but we think that if the increase of imports aiming for the increase of domestic consumption be taken out, there will be very little increase of commerce shown. Why? Because Cincinnati is competing with her neighbors on all sides *with one arm*. This is literally true, for her commerce, strictly speaking, is confined almost entirely to the *north side of the Ohio River*. A few counties in Kentucky, with a few exports to the southern coast make up Cincinnati's trade with the South, except in manufactures which go down the Mississippi. This is an *unhappy* position, but it is so; if these were days of *wagoning* produce we would be as well off in the South as in the North, but it is a day of railroads, and that city, only, can carry on commerce on every side that has railroads on every side. Radial lines to the South as well as to the North we have not. Louisville has a direct line to Nashville and a direct line to Memphis; and Cincinnati must go a hundred miles further to get to them. Now, this would not be the case if we had a *direct line* South. With such a line Louisville could not interfere, nor could she successfully compete with it, *nor could New York or New England compete with Cincinnati in the sale of manufactures in the interior of the South*. This is one of the great benefits to be derived from a Southern road, but we doubt whether Cincinnati will get this benefit until her citizens do something more than throw in a ballot. They must show themselves personally interested in what is so obviously to their own advantage.

The petroleum counties in Pennsylvania it is stated, have not shown the increase of population which might be anticipated from the industrial pursuits carried on there since 1860. The census returns show that Venango, Crawford and Mercer counties have increased from 110,654 population in 1860, to 160,190 in 1870, or 49,536 in ten years. This gives an increase of 44.76 per cent., while the entire western district of Pennsylvania has increased 39 per cent. Luzerne county, however, on account of her coal mines, has done better than the oil producing counties, having increased her population from 90,244 in 1860, to 160,971 in 1870, that is 70,727 souls, or 78 per cent.

Letter from Commissioner Wright.

We received the following reply from our State Railroad Commissioner, to an inquiry we made concerning the recent Supreme Court decision upon the individual liability question, that came before it in the case of "C. W. Alexander et al. vs. Jacob T. Martz, Receiver of the Cincinnati & Mackinaw Railroad."

It is interesting, as it gives a brief history of the case, but what we wanted more particularly, and what our correspondents write for, is the reasoning of the Court upon this law, by which its conclusions were reached. But as the case, important as it is, seems to have gone off upon a mere motion, we supposed such reasonings were not published:

COLUMBUS, Nov. 21, 1870.

EDITORS RAILROAD RECORD—*Gentlemen:*

Your letter of inquiry about the case of C. W. Alexander et al. vs. Jacob T. Martz, Receiver of the Cincinnati & Mackinaw Railroad Company, came duly to hand, and would have received an earlier reply but for pressing engagements in my office.

It would be impossible for me to give you a full history of the case as presented in the voluminous papers filed in the Supreme Court, within the compass of a reasonable letter, but I will endeavor to give you an outline sufficient, perhaps, to satisfy the inquiries of your readers.

The case before the Supreme Court, is simply a motion for allowance of a writ of error to the District Court of Darke county, Ohio. The motion was filed on the 6th of October, 1870, and on the 17th of October, the motion was overruled by the Court, and the writ of error refused.

It seems the Cincinnati & Mackinaw Railroad Company was an Ohio corporation, organized under the general corporation act of May 1, 1852. The certificate of incorporation was filed in the office of the Secretary of State, on the 19th of October, 1853, for the building of a railroad from a point on the State line between Ohio and Michigan, thence in a southerly direction through the counties of Williams, Defiance, Paulding, Van Wert, Mercer, Darke, Montgomery and Preble to Carlisle, in Warren County.

I have no knowledge when work was commenced, but it seems that during the years 1857 and 1858, considerable subscriptions of stock were made, and during those years and subsequently at intervals, installments of said stock were collected and money expended in grading the road, etc., in the counties of Darke, Mercer and Van Wert. The company becoming largely indebted to various persons, and being unable to pay, numerous judgments were rendered in the Court of Common Pleas of Darke County, and executions issued and returned, "no goods or chattels found, whereon to levy."

Upon petition filed by one of the creditors in March, 1865, alleging the insolvency of the company, a receiver was appointed, and undertook to bring all the creditors before the Court, and marshal the assets of the company. The insolvency of the company being apparent, the Court ordered the receiver to collect the collectable stock remaining due on the books of the company, and also that he proceed to collect from the stockholders of the company, such further amounts in addition to their stock, as might be necessary to pay the debts of the company, not exceeding 60 per cent. in addition to the original amount of the subscription in any case. This call upon the stockholders for contributions was made in pursuance of section 79, of the act of May 1, 1852, as amended, and now stands, making all stockholders of companies organized under said act, "liable to an amount equal to their stock subscribed, in addition to said stock, for the purpose of securing the creditors of such company." Some of the stockholders have paid their subscriptions in full and an equal amount in addition, others have made partial payments.

Many judgments and much litigation has grown out of the matter, and doubtless many persons are involved in them. The refusal of the Supreme Court to sustain the motion for a writ of error, sends the case back to the Court of Darke County, where its history will proceed, and where you will doubtless be able to get more full and accurate information than can be furnished you from here.

The motion for an allowance of the writ contains some eight or ten assignments of error, in the proceedings of the Court below, a statement of which I presume is not desired by you. I gather from the slight examination I have been able to make, that the liabilities of the company for which the stockholders are being called upon to contribute, amount to about \$10,000, and, as is usual in such cases, many stockholders are unable to respond, or are beyond the reach of process. Indeed, costs and expenses are continually swelling the liability, and both stockholders and creditors will doubtless in the end be large losers.

Hoping this brief sketch may answer your purpose, I am, very respectfully,

Your obedient servant,

GEO. B. WRIGHT.

A gentleman of San Francisco, who has been and is identified with the forwarding of Chinese laborers to the Southern States, says that the total number of Chinamen sent across the continent is now about 2,000. They are engaged in railroad work and on cotton and rice plantations; the wages being \$26 to \$30 per month, gold, boarding themselves; or \$16 to \$18, receiving rations. The movement, however, is only in its infancy, and during the coming winter and spring, it is expected that large numbers will be forwarded.

Springfield & Illinois South-Eastern Railway Company.

SHAWNEETOWN, Ill., Nov. 17, 1870.

EDITORS R. R. RECORD:

Gents—We will soon have the southern division of our road completed, a gap of only sixteen miles in White Co., of which the grading is nearly done, and the iron being now laid, and will be finished by the first of January, when we will have ninety-five miles in operation from this point (on the Ohio river) to Edgewood, on the Chicago branch of the Illinois Central Railroad. We have been running trains on both ends for several months. On the northern division of our road we have had the forty-five miles between Pana and Springfield in operation since February last, and have two-thirds of the road bed ready, from Springfield towards Beardstown, on Illinois river, and track being now laid there.

The gap of forty miles between Edgewood and Pana will be completed next spring, and when finished will make one continuous and direct line of railway, from Shawneetown through Springfield, the capital of the State, to the Illinois river, of 225 miles in length, and at Beardstown connecting with the Rockford, Rock Island & St. Louis Railroad, thus traversing the State from the south-east to the north-west.

Hon. Wm. P. Cutler, of Marietta, Ohio, and F. Dodge, of Columbus, Ohio (Messrs. Cutler, Dodge & Co.), are the contractors, who have built every mile of our road, and will own and operate it.

T. S. R.

We call attention to the important changes in our Railroad Time Table.

Our thanks are hereby expressed to Hon. Job Stevenson for important public documents.

Dayton Coal Road Survey.

We condense the following from a late number of the *Dayton Journal*.

The preliminary survey of the line from Hillsboro, by Wilmington, to Dayton, has been so carefully laid, after a thorough examination of the country, that no material changes will be required in the permanent location.

The maximum grade of thirty nine feet to the mile facing south-east, corresponding with the balance of the line to the mineral belt at Jackson, has been maintained without difficulty or increased cost. The maximum grade of fifty-two feet to the mile, facing north west, has also been maintained without difficulty.

The distance from the railroad depot at Hillsboro to the corporate limits of Dayton is fifty miles, a gain by the railroad line over the shortest traveled road of five miles. This is evidence of remarkable directness of alignment.

There is, over the table land of Clinton Co., an air line of eighteen miles, and this line connected by so slight an angle with another of seven miles, as to make in one stretch what is equivalent to an air line of twenty-five miles.

With the fifty-one miles of new road to construct from the intersection of the Dayton & Xenia track within the city of Dayton to the old railroad bed at Hillsboro, and the fifty-eight miles of partly worked line from Hillsboro to Jackson, making 109 miles, the manufacturers and citizens of Dayton will command at reasonable rates a proved smelting and manufacturing coal, and one also highly appreciated for parlor and domestic use, and also the products of various furnaces now in successful operation.

By the extension of the line from where it strikes the Scioto river, at a distance of thirty-five miles from Hillsboro, over the easy gradients furnished by the Scioto and Ohio valleys, sixty-five miles, a connection is formed with the Chesapeake & Ohio Railroad, with the flourishing cities of Portsmouth and Ironton, and the future city of Huntington on the Virginia side of the Ohio river, opposite the mouth of Symmes creek.

This line also brings Dayton into communication with a large number of furnaces and rolling mills in active operation, and with the richest part of the mineral belt of southern Ohio, as well as a frontage of thirty miles of coal seams.

The extension of the Jackson branch southeast to a connection with the Gallipolis road, will add to the area of the mineral belt commanded by this road, and form a double connection with the Chesapeake & Ohio road, when that company shall build its branch to Gallipolis. This extension will also bring the road in contact with a canal coal seam of six feet, said to be equal to the Coal river canal coal of Virginia.

The distance from Dayton by the engineered line to the mouth of Symmes creek, or connection with the main stem of the Chesapeake & Ohio Railroad	150
Distance from the mouth of Symmes creek by the Chesapeake & Ohio Railroad to Richmond, Va.....	392
Distance from Dayton to Chicago.....	254

From Chicago by Dayton to Richmond, Va. 796
The distance from Dayton to Washington city by the surveyed line and the Chesapeake & Ohio road is 559 miles.

Thirty-eight furnaces and a number of rolling mills are in active operation in the Hanging Rock district. They produced during the year 1869, as reported by Col. Bowles:

	Tons.
Of charcoal pig iron about	90,000
Of iron made with bituminous coal..	16,000
	106,000
Amount of native ore used.....	260,000
Missouri and Lake Superior ores...	15,000
	275,000
Amount of limestone used.....	15,000
Number of bushels of bituminous coal used in smelting ores for pig iron	1,408,000

Thirty-one of these furnaces are in Jackson, Scioto and Lawrence counties, four in Vinton, two in Hocking, and one in Gallia. A majority of them will be commanded by this road.

Four of this number are successfully engaged in smelting iron ore with the Jackson coal, without coking—Vinton county one, Fulton, Orange and Starr at Jackson, and the Belfont at Ironton, with the Ashland, Kentucky, coal.

Of all the bituminous coals of this country and England, compared by geologists, the Jackson hill and shaft coals have the smallest per centum of sulphur, and a larger amount of fixed carbon than any in this country, except the Brier hill, Mahoning county.

Col. Trimble, the president of this road, in giving these facts to the Board of Trade of Dayton, says:

I am satisfied that with the low grades and splendid system of curvature of the line I have just engineered, the road when completed will be able successfully to compete in the transportation of the heavy articles of coal and iron with and existing or proposed road. I doubt not both can be carried at a profit to the company on this line at one cent per mile. The large business it is destined to command from other sources will aid it in cheapening to communities the charge on these articles of prime necessity, and in that respect give it advantages over a purely coal road.

Diamonds in South Africa is a theme for as constant an excitement in the colonial newspapers, as gold in California. Small lots are continually reaching Port Elizabeth for transhipment to England. Two hundred were found on the Du Ploy farm in two weeks. The diamond district is 650 miles northeast of Cape Town, and 5,000 feet above the sea level. The Jewelers' Circular describes it as a large rolling prairie country, traversed by the Vaal, Orange and Hart rivers, which are shallow and full of falls, and have both sandy and rock bottom, cut from 20 to 60 feet into the plain. A dozen natives join hands and walk abreast; when they see a shining pebble they pick it up; if it be not a diamond they throw it away. White men have sifted the dry sand. At Jacobsdal 300 were found by sifting in one week, mostly small. Many half carat stones are found, mostly wide asunder; mostly in alluvial soil; some in "kalk" or limestone soil; some in soil composed of pebbles, quartz and crystals. Stones sold in England weighed (in the order of their sale) 21 carats (\$2,500), 4½, 1, 3, 19, 9, 10½, 30½, 26, 13, 13, 9, 47, (\$4,000). The Star of Africa, 83½, sold for \$55,000, and was sent to Amsterdam to be cut. Over fifty have been found weighing over 4 carats. Six London firms have received 630 stones. Carbonate or imperfect diamonds abound in the limestone; fine garnets, rubies, sapphires, and topazes, and one turquoise have been found. The diamond fields cover 1,000 square miles. A hundred whites (some from California) are working on the Vaal near the Puiel mission, with a vigilance committee organization and fixed laws. The earth is transported to the banks of the river to be washed, sifted and screened; large stones have been thus obtained. The river bed is to be dredged. Carts and barrows are in great demand. The district is two days' horseback ride (100 miles) from Bloemfontein. One stone worth £1,500 was given by its finder for a wagon and oxen worth £120. The small diamonds are sold by the miners for their daily necessities, the large ones kept for Europe.

Before the war there were 635,490 foreigners residing in France, divided in respect to nationality as follows: Germans, 106,606; Belgians, 275,888; Italians, 92,264; Spaniards, 32,650; Swiss, 42,270; English and Americans, 29,850. Of the German residents 57,813 are returned as from North, and 48,793 from South Germany.

The Debt Statement.

The October statement of the public debt continues to show the same satisfactory results of previous returns. There is a large decrease of the principal of the debt as compared with the previous month, and since March, 1869. The following is a comparative statement.

DEBT BEARING COIN INTEREST.			
BONDS.	Nov. 1, 1869.	Nov. 1, 1870.	Oct. 1, 1870.
5 per ct....	\$ 921,589,300	\$ 219,167,200	\$ 221,589,300
6 per ct....	1,866,347,500	1,731,562,900	1,779,562,700
Total....	2,167,936,800	1,950,730,100	1,961,152,000

DEBT BEARING CURRENCY INTEREST.			
	Nov. 1, '69.	Nov. 1, '70.	Oct. 1, '70.
3 per cent Certificates	\$47,649,000	\$45,070,000	\$45,135,000
Navy Pension Fund...	14,000,000	14,000,000	14,000,000
Total.....	61,649,000	59,070,000	59,135,000
Matured not paid.....	4,389,986	3,393,117	3,437,067

DEBT BEARING NO INTEREST.			
	Nov. 1, '69.	Nov. 1, '70	Oct. 1, '70.
U. S. Notes.....	\$359,113,250	\$356,102,321	\$356,103,971
Frac. Currency.....	37,035,442	39,284,793	39,541,183
Gold Certificates..	2,731,520	13,634,500	13,571,300
Total.....	421,880,220	409,058,614	409,216,455

RECAPITULATION.			
Debt—	Nov. 1, 1869.	Nov. 1, 1870.	Oct. 1, 1870.
B'g coin int.	\$2,197,936,800	\$1,950,670,200	\$1,961,152,050
B'g cur. int.	61,649,000	59,070,000	59,135,000
B'g no int.	421,880,220	409,058,614	409,215,455
M't'd n't p'd	4,389,986	3,393,117	3,437,067
Total	2,595,847,007	2,422,191,931	2,429,940,572
Pac. R. R....	62,188,320	64,618,832	64,618,832
Gr'd Total	2,658,035,327	2,486,810,763	2,497,559,404

AMOUNT IN TREASURY.			
	Nov. 1, 1869.	Nov. 1, 1870.	Oct. 1, 1870.
Coin.....	\$ 116,994,711	\$ 103,131,073	\$ 96,061,661
Currency.....	72,829,295	26,813,383	32,088,505
Sink'g fund.			
coin interest on b'd and acc'd int thereon	18,200,501		
Other purchas'd b'ds	42,020,646		
Total in Treasury...	189,523,554	129,946,457	128,150,166
Debt less cash in Treasury.....	2,469,511,773	2,356,864,306	2,369,407,237

This statement shows a decrease in the aggregate debt, deducting cash on hand of \$5, 129,297 during the month of October, and of \$96,544,122 since March 1, 1870. The total decrease in the principal of the debt since March 1, 1869, is \$183,678,905.

The Treasury balances show a decrease in currency and increase of gold. The amount of coin in the Treasury is \$103,131,073, an increase of \$7,000,000 during the month. But the actual amount of gold owned by the government is only \$40,646,910. There is a sum of \$48,817,663 due to bondholders for interest, but not yet claimed by them, and liable to be demanded by them at any moment. Out of this the November interest amounting to \$23,000,000 has to be deducted in order to arrive at an estimate of the actual condition of the Treasury. A sum of \$13,666,500 is owned by depositors, and held on their account. The change in the amount held for depositors constitutes one of the most significant features in our finances. Since November 1,

1869, a total of \$15,065,020 has been withdrawn, thus showing the extent of the pressure upon the banks by the exporters of specie. There is a reduction of \$5,273,121 in the currency balance.

The debt statement is creditable to the administration of the finances so far as it affords evidence of a careful collection of revenue, and of an honest desire to pay the principal of our indebtedness. The payment of no less a sum than \$183,678,905 within a period of little more than a year and a half, certainly can not fail to produce a due effect in increasing the credit of the government at home and abroad. We believe that this large liquidation is contrary to sound financial principles, and it would be more judicious to reduce the burdens of taxation and thus increase the reproductive energies of the country. But so long as the present policy prevails it is satisfactory to know that the public money is not wasted, and the surplus is duly devoted to the liquidation of the debt.

In this connection it is interesting to note that the Secretary of the Treasury affords no uncertain indication of his intention to push the new 4 @ 4½ per cent. bonds. To this end he has reduced the bond purchases for November from \$3,000,000 to \$4,000,000, and the gold sales are increased from \$4,000,000 to \$5,000,000. There are some grounds for believing that the bond purchases have been reduced with a view of leaving a margin for the redemption of the 3 per cent. certificates, which is to be seriously attempted without delay. This programme may now be carried out with reasonable prospects of success. Our exports increase largely at this season of the year, and we have no grounds to apprehend a renewal of the drain of gold to Europe. The coin in the Treasury and in the banks is likely to be largely increased within the next two months. Between November 1, 1870, and January 1, 1871, a sum of \$60,000,000 in coin will be disbursed for the payment of interest. The bulk of this money will undoubtedly find its way into the banks. The prospects, therefore, are good for an easy money market, and so far as Mr. Boutwell is concerned he has every motive to promote it—if for no other reason than to conduce to the success of the new funding bill.—*Economist*.

ANTIDOTES FOR COPPER POISONING.—As we are now giving an extensive series of articles on paints made of copper, and some of our readers may be induced to experiment in this line, it may be well to acquaint them with the antidotes for copper poisoning. The most usual causes for poisoning in preparing paints are the inhalation of dust and want of cleanliness, as by dirty hands the food may be contaminated with poisonous matter, since the oxide of copper is soluble in all oils and fatty matter. The symptoms of copper poisoning are a sharp metallic taste in the mouth, a burning feeling in the throat, contraction of the throat and intestines, griping, vomiting or tendency to do so, insatiable thirst, etc.

The antidotes are whites of eggs—but some physicians prefer the yolks (the yolk of one egg will neutralize more than two grains of acetate of copper; albumen forms with copper an insoluble inert compound)—iron and zinc in powder, sugar, milk, magnesia, and a few others. We recommend the following preparation, based on our own experience: Take a pint of milk, put in plenty of sugar to sweeten it, and three or more fresh raw eggs—white, yolk, and all—mix well and drink repeatedly, a tea-cupful until relieved.

The New Interoceanic Canal Routes.

Another United States Surveying Expedition has sailed this week to continue the explorations commenced last winter for the discovery of an available route for a ship canal on the narrow isthmus between North and South America that separates the Pacific from the Atlantic Ocean. In reality there will be two explorations, both operating in concert from either ocean. The Atlantic coast expedition will consist of the *Kansas* and the *Mayflower*, with Captain R. W. Shurtfield as commander. The Pacific coast expedition is to consist of a single war steamer, which will be supplied with boats and means for taking soundings of the bays and harbors on the Pacific side.

The explorations are to be directed to the region generally known as Tehuantepec, and is situated on Mexican territory. It is very much farther north than the routes by Panama and Darien. The proposed Tehuantepec route is two hundred miles longer from ocean to ocean than those of Panama and Darien. But it is very considerably cheaper, is much more practical, and besides it presents political and commercial advantages to the United States which should alone entitle it to a preference.

The advantages of the Tehuantepec route may be briefly stated. In the first place it crosses Mexican territory, and is much nearer to the United States than to Panama and Darien. It is not so liable to the dangers of foreign intrigues and revolutions as the route across the United States of Colombia. A Tehuantepec ship canal would be also more central in relation to the United States, and is almost in the direct line of Eastern commerce. For years past the European governments and capitalists have been intriguing in the State of Panama in reference to the proposed canal by that route, and more than one political revolution has been effected both in that state and in the federal capital at Bogota. It is well known that the expulsion of President Mosquera was caused by these intrigues. The governments of France and England dreaded the commercial preponderance of the United States in case of the construction of an inter-oceanic route. Louis Napoleon took especial interest in the question, and the Mexican Maximilian blunder was in reality based on a delusive dream of attracting the commerce of the East to France across Mexican soil. It is probable that the United States is destined to realize the policy of the fallen Emperor.

Nature seems to interpose insuperable difficulties to the construction of a canal at Darien. After a great deal of conjecture and considerable scientific hickerings, it has been settled upon competent authority, not that a canal can not be constructed at Darien, for everything is possible to modern science, but that the cost and trouble of construction would be out of all proportion with the benefits to be derived from it. The Darien Canal exploring expedition, sent by the United States Government in January last, could discover no pass through the dense forests and undergrowth of the region. The Isthmus is situated on the spur of the great mountain range that traverses the Southern continent, and the only level available for a canal is through a mountain range which will involve ten miles of tunneling. There seems to be sufficient water obtainable, and the other portions of the route are not unfavorable. But the cost, labor and danger of boring ten miles through solid rock in that re-

gion places the route out of the pale of discussion; unless in the improbable event of the future discovery of a pass through the mountains.

The information respecting the Tehuantepec route is more favorable. No tunnels or deep cuttings are required; there is a plentiful supply of water, and this route presents no unusual difficulties. In advance of the report of the United States surveying expedition, which has just sailed, this route will meet with general support. The total estimated cost of construction is \$33,000,000. The Darien canal would cost from \$80,000,000 to \$100,000,000. The proposed dimensions of the Tehuantepec canal are: top 122 feet; bottom 50 feet; and depth 20 feet. The canal proper will be 125 miles in length, as the remaining distance of 125 miles can be made available by river navigation, and the construction of a few locks and dams. The total distance from ocean to ocean is 250 miles.

The United States Government intends to make a thorough exploration of the entire isthmus from Tehuantepec to Darien. The country from ocean to ocean will be fully surveyed. All bays, inlets, and the entire coast line on both oceans will be sounded, and their bearings will be accurately reported. The scientific and commercial importance of these explorations are abundantly apparent. The United States ships and men could not be employed in a better work. The world will be the better for these services, and this is more than can always be said of our army and navy.

The United States government intends to guarantee the proposed canal, at whatever point it may be constructed. It is to be hoped that this guarantee will be limited to the pledge of the political neutrality of this great highway of commerce. More than this is inexpedient. The construction of the work is entirely within the means of private capitalists, and properly devolves on them. The work is eminently national. It will confer the greatest benefits upon American commerce. It will secure us the trade of China, Japan and Australia, and promises to be of greater benefit than the Suez Canal. A carefully prepared estimate deduced from the tables of American and foreign commerce for the last ten years shows that the total annual value of ships and cargoes expected to pass through the canal will be \$192,649,584. The yearly income, calculated at \$2 per ton, would amount to \$6,000,000. This does not include the United States coasting, which would probably exceed the commerce of all foreign nations combined.—*Economist*.

—We imported from France last year about \$35,000,000 worth of goods, and from the North German Confederation \$25,250,000. We exported to France \$43,600,000 of our products, and to the German Confederation \$11,250,000. In 1869 the German emigrants numbered 132,540, and since 1866 over 600,000—all of them bringing more or less means with them. Experts say that \$100 is a moderate average for the amount of money each emigrant brings over. This would give \$12,000,000 per annum in specie from this source.

The total of ships entered inwards and outwards in Great Britain during the year 1869 amounted to 34,910,281 tons, as compared with 33,680,979 tons of the previous year. A total of 1,682 new vessels were built and registered in the British Empire during 1869.

Railways of the United States.

The following tabulation shows the distribution of mileage and cost to the several States and Territories.

STATES, ETC.	MILES OF ROAD		COST OF ROAD AND EQUIPMENTS.
	Total.	Open.	
Maine.....	940 79	672 07	\$21,183,110
New Hampshire.....	785 32	685 32	22,642,630
Vermont.....	653 09	613 09	28,787,906
Massachusetts.....	1,509 75	1,483 70	74,699,441
Rhode Island.....	121 47	121 47	5,137,672
Connecticut.....	806 94	694 57	27,350,017
New York.....	4,735 91	3,636 22	209,001,671
New Jersey.....	1,023 65	909 61	71,027,535
Pennsylvania.....	6,578 36	5,014 45	300,558,508
Del. and E. Maryland.....	455 50	292 50	8,773,637
Maryland other than above.....	730 02	493 52	31,411,679
West Virginia.....	723 75	364 75	27,869,315
Virginia.....	2,149 11	1,432 94	49,806,441
North Carolina.....	1,532 97	1,129 67	29,301,425
South Carolina.....	1,439 17	1,109 97	27,348,817
Georgia.....	2,095 41	1,694 50	36,873,552
Florida.....	613 20	410 20	9,883,981
Alabama.....	2,059 20	1,036 00	36,421,163
Mississippi.....	901 29	900 20	21,918,504
Louisiana.....	928 30	414 50	17,852,233
Texas.....	2,529 25	725 25	17,006,000
Arkansas.....	807 00	86 00	4,310,400
Tennessee.....	1,876 53	1,435 53	46,918,444
Kentucky.....	1,412 81	849 51	3,651,716
Ohio.....	4,613 96	3,723 29	100,424,307
Michigan.....	2,293 26	1,198 76	47,993,418
Indiana.....	5,321 10	2,277 10	121,162,301
Illinois.....	7,186 43	4,707 45	217,559,542
Wisconsin.....	2,779 60	1,499 60	60,358,723
Minnesota.....	1,800 00	823 00	27,861,100
Iowa.....	3,219 28	2,140 23	85,762,942
Nebraska.....	449 00	449 00	26,450,000
Wyoming Territory.....	560 00	560 00	43,300,000
Missouri.....	3,261 78	1,227 00	84,272,121
Kansas.....	1,601 50	939 50	39,621,500
Colorado.....	350 00	150 00	6,000,000
Utah Territory.....	265 00	265 00	18,000,000
Nevada.....	390 00	200 00	19,500,000
California.....	2,297 10	811 60	46,650,000
Oregon.....	2,019 50	119 50	5,709,000

The annual progress of railway building since 1827. The commencement was made in the construction of the Granite Railway at Quincy, Mass., to the present time, is shown in the following table.

YEAR.	MILES.	YEAR.	MILES.
1828.....	3	1850.....	7,475
1829.....	28	1851.....	8,549
1830.....	41	1852.....	11,027
1831.....	54	1853.....	13,497
1832.....	131	1854.....	15,672
1833.....	576	1855.....	17,398
1834.....	762	1856.....	19,251
1835.....	918	1857.....	22,623
1836.....	1,102	1858.....	25,090
1837.....	1,431	1859.....	26,753
1838.....	1,843	1860.....	29,771
1839.....	1,920	1861.....	30,593
1840.....	2,197	1862.....	31,769
1841.....	3,319	1863.....	32,471
1842.....	3,877	1864.....	33,860
1843.....	4,174	1865.....	34,442
1844.....	4,211	1866.....	35,351
1845.....	4,522	1867.....	36,696
1846.....	4,871	1868.....	38,622
1847.....	5,336	1869.....	42,272
1848.....	5,682	1870.....	46,800
1849.....	6,350		

This does not include street railroads, which amount, as near as we can estimate, to about 4,200 miles; nor mining railroads beneath the surface, the extent of which we have no data for estimating.

WATER-PROOF GLUE.—One ounce of gum-sandarac and one ounce of mastic are to be dissolved together in a pint of alcohol, to which an ounce of white turpentine is to be added. At the same time, a very thick glue is to be kept ready, mixed with a little isinglass. The solution of the resins in alcohol is to be heated to boiling in a glue-pot, and the glue added gradually with constant stirring, so as to render the whole mass homogeneous. After the mixture is strained through a cloth, it is ready for use, and is to be applied hot. It dries quickly and becomes very hard, and surfaces of wood united by it do not separate when immersed in water.

The Telegraph.

ITS INCEPTION AND GROWTH—COLOSSAL PROPORTIONS OF THE WESTERN UNION.

The October number of *Lippincott's Magazine* contains an interesting article, from which we compile:

At the close of 1848 but little more than four years had elapsed since the construction of the first electric telegraph in the U. S., yet in that brief space of time twelve thousand miles of wire had been strung, connecting all our principal cities, and competing lines were fighting for new and undeveloped business.

On the first of April, 1851, Sanford J. Smith, Isaac Butts, Freeman M. Edson and Samuel L. Seldon, who had obtained exclusive right to use House's printing telegraph between Buffalo and St. Louis, organized themselves into a company under the general telegraph laws of New York, to finish a line which Smith and Butts were then constructing between these two points. The capital stock was fixed at \$360,000, divided into 3,600 shares of \$100, each member of the company taking 900 shares. Of the amount thus obtained, \$180,000 were to be paid to Smith & Butts for the construction or purchase of a line from Buffalo to St. Louis via Cleveland, Columbus and Cincinnati, and the remaining \$180,000 to Selden & Edson as royalty for the use of House's instruments and insulators.

They took the name of the New York and Miss. Val. Printing Tel. Co., and thus originated the greatest telegraph company in the world.

Their line was constructed as far as Louisville via Dunkirk, New York, Erie, Pennsylvania, Cleveland, Columbus and Dayton, Covington, Georgetown and Frankfort, with a branch to Lexington; and on the 30th of March, 1854, they acquired the Lake Erie Tel. Co. Those lines extended from Buffalo to Detroit, and from Cleveland to Pittsburgh. On the 29th of April the Cleve. & Cin., the Cin. & St. Louis, and the Ohio Tel. Companies passed into their charge, to which they added a controlling interest in the New York & Erie, the Cleve. & Pitts., and the Cleve. & Painesville Companies.

The following year, (1855) they constructed lines between Detroit, Grafton, Chicago, Toledo and Cleveland, and in September obtained possession of the Erie & Michigan Co., whose wires, stretching from Buffalo to Milwaukee, had been erected by J. W. Wade and J. J. Speed, the pioneer builders of lines along the shores of our great lakes, who retained control of the Company up to the time of consolidation.

On the 13th of Feb., 1856, the lines of the O. & Miss. Co., covering the territory between St. Louis and Cincinnati, fell into their hands, and on the 4th of April the N. Y. Legislature changed their name to the Western Union Telegraph Co. The new corporation signalized its advent by absorbing the Pittsburgh, Cincinnati and St. Louis lines. This took place May 24th, and was followed July 17, 1857, by the acquisition of the Southern Michigan line.

In 1859 Congress passed a bill in aid of the project of establishing telegraphic communication with the Pacific coast, and the Secretary of the Treasury invited proposals for the construction of the line, which resulted in the contract being awarded, Sept. 20th, to parties connected with the Western Union Company.

In 1863 the N. Y., Alb. & Buff. Electric Magnetic Co. was absorbed by the Western Union, and this was followed by the acquisition in 1864 of the Pacific line from Omaha to Salt Lake City, and also by that of the Atlantic and Ohio Co. From May 1, 1864, to October 1, 1865, this Company had acquired 3,800 miles of wire by consolidation, together with 8,600 miles by direct purchase, and its capital largely increased.

On the 1st of March, 1866, the Middle States lines were transferred to that Co.

To-day the Western Union Co. is colossal in its size. Between Jan. 1, 1866, and July 1, 1869, 8,000 miles of poles and 18,000 miles of wire were put up, and of the old lines 8,000 miles of poles were entirely renewed with 17,000 miles of wire. The company now owns 53,000 miles of line, with 105,000 miles of wire, connecting 3,500 stations, and has in its employ nearly 7,000 persons.

The increase in the telegraph business of the country has been rapid beyond all expectations. Offices that in 1848 returned \$500 as a total month's receipts now render accounts for \$59,000, and at Washington, the starting point for the whole American system, when the revenue for the first week of April, 1845, was \$1.55, it is now \$100,000 yearly; and if all the press matter sent from that city were paid for there, the annual receipts would be swollen to over \$200,000.

Great telegraph lines now unite all points of the world in daily communication. The leading papers of the country publish daily full reports of the proceedings of Congress; letters of consequence are now converted into telegrams, and the merchant, instead of waiting two months for his answer from San Francisco, receives it within six hours. New Orleans, San Francisco and Archangel are in constant communication with each other and the rest of the world; and every morning the inhabitants of those cities can peruse in their daily papers the record of the previous day's transactions at London, Paris, Berlin and St. Petersburg.

MOUNT CENIS TUNNEL.—On June 1st, 1868, 8,348 metres had been completed. During the month 60 metres additional were finished on the southern side, and 54 on the northern, making a total of 8,498 out of the whole length of 12,220, leaving 3,722 metres yet to be executed. It appears that at the close of 1867, 4 miles and 3,035 feet of the Mount Cenis tunnel had been completed, leaving 2 miles and 4,018 feet still to be pierced. The distance pierced in 1867 was 5,010 feet, as compared with 3,416 feet in 1866, 4,079 feet in 1865, and 1,144 feet in 1860. The outlay, during 10 years upon the work, amounted, at the close of 1867, to about \$8,000,000. The year 1871, it is expected, will witness the completion of the tunnel. Its total length, when finished will be 7 miles, 3,773 feet, and its total cost is estimated to reach the sum of \$12,600,000, or something more than \$1,500,000 per mile.

INTERESTING ANTIQUITIES.—A granite boulder has been discovered in Dakota (township 30 north, range 1 east,) with an upper surface about four feet square, almost level, and covered with arrow-head inscriptions, some of which are almost obliterated by the elements. The boulder lies on one of the highest bluffs around. All that neighborhood is covered with remains of ancient pottery, bard and compact, of a blueish gray color.

The trade in log and dye woods is becoming a very valuable one for some of the Southern States of Mexico. The small port of Laguna is one of the ports from which the largest exportations are annually made, and from the custom house returns we learn that during 1869 no less than 109 vessels sailed from there, taking to different foreign markets 615,882 quintals of log and dye woods. Of these vessels, forty-four were French, twenty-eight German, sixteen Spanish, seven American, five English, four Danish, and one each of the following nationalities: Mexican, Venezuelan, Belgian, Dutch and Italian.

A cotton factory of Augusta, Ga., has just published its annual report. The capital stock of the company is \$600,000; consumption of cotton during the year, 2,907,875 pounds; cloth manufactured, 8,222,181 yards; hands employed, 489; to whom \$157,976 were paid in wages; net earnings, \$126,779; from which four dividends of five per cent. each were paid, and \$7 79 added to the surplus fund.

The great prosperity of the iron and coal regions of Pennsylvania, is shown in the growth of mining towns. Scranton, the center of the Luzerne coal field, had only 9,223 inhabitants in the year 1860, and has now 35,762, and takes rank above Reading as the third city in the State. Williamsport has risen from 4,253 in 1860 to 16,066 in 1870; and Wilkesbarre, which had 4,200 in 1860, has now 10,180.

The Pacific railway Company, in connection with the Pacific Mail steamer line, have just adopted the following reduced fare rate from New York city westward: New York to San Francisco, currency, \$136; San Francisco to Yokobama, gold, \$250; do. to Hiogo, gold, \$290; do. to Shanghai, gold, \$300; do. to Hong Kong, gold, \$300; do. to Nagasaki, gold, \$300.

It is said that iron ores containing phosphates can be purified by treatment, first with sulphuric acid and a subsequent washing with water. In some cases, instead of sulphuric acid, some other oxygen combinations of sulphur are employed. Ores which contain sulphurets and carbonates should be roasted before the treatment just referred to.—*Harper's Magazine.*

The commerce of the world requires 3,600,000 of able bodied men to be constantly traversing the sea; of this number probably 7,500 die every year. The amount of property annually moved on the water is from fifteen hundred to two thousand million dollars; and the amount lost by the casualties of the sea averages twenty-five millions of dollars.

Last year San Francisco exported 7,800,000 sacks of wheat, the most of it the product of California. In 1869 the wine product of the State was 4,000,000 gallons, and this year it will be about 7,000,000 gallons, and it is estimated that there are now \$30,000,000 invested in growing wine in the State.

A number of prominent citizens of St. Louis visited the tin mines lately discovered in Missouri, and submitted nine assays to a thorough investigation. The result proved an average of over five per cent of pure metal in the first three, and over 8½ per cent in the last five—equal in purity to the best Cornwall tin.

The official census returns give Michigan 1,192,461 population, an increase of 442,343 since 1860.

THE PENNSYLVANIA STEEL WORKS.—The new hammer in the Bessemer Steel Works, Pa., near Harrisburg, weighs 35,000 lbs., and cost \$92 000, and is the largest in the United States. The company soon expect to make 25,000 tons of steel rails per month. The Bessemer rails made by this company are wearing remarkably well, comparing favorably with the best make ever imported into the country.

The population of London is 3,563,410 against 2,473,754 twenty years ago—an increase of 1,089,652, or over 47 per cent. This is remarkable for so old and so large a city. The population of London lacks only 100,000 of being as large as that of the whole State of Ohio.

The population of California is 550,000 and of San Francisco 150,000.

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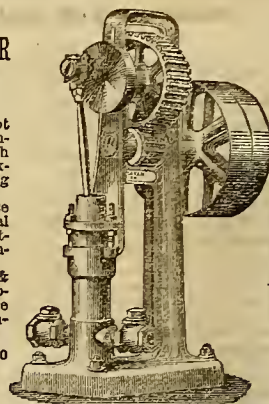
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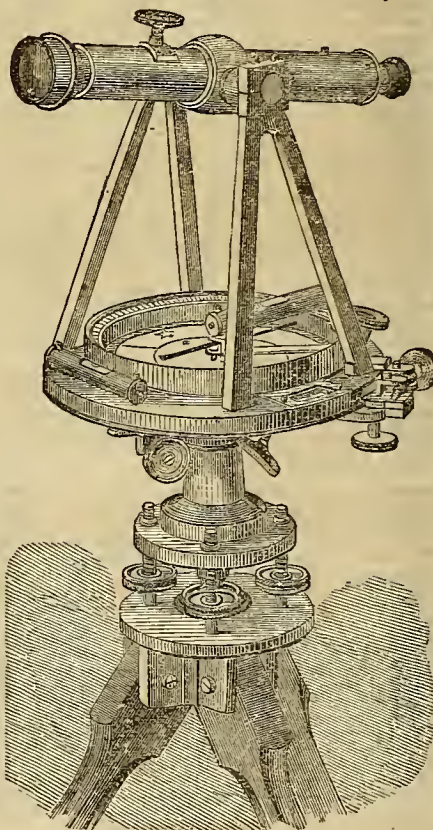
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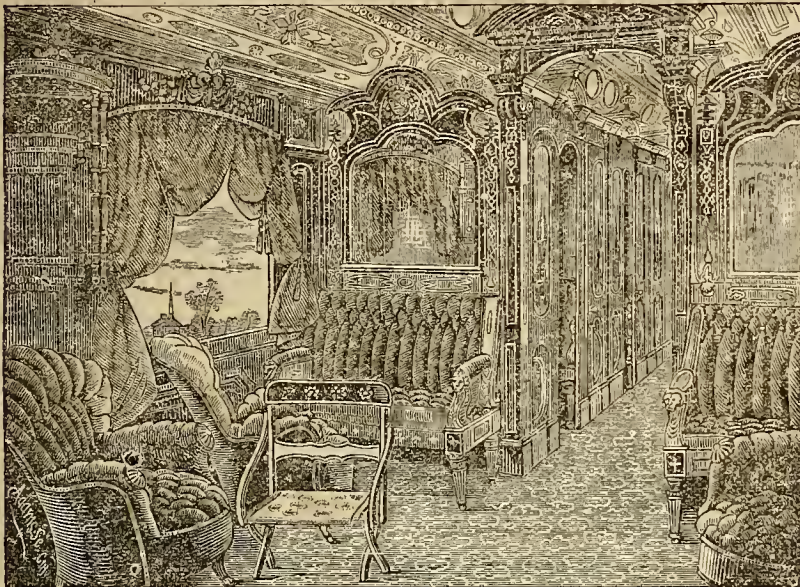
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**59 Miles in Distance Saved
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BOSTON,

WITH THE PRIVILEGE OF GOING TO

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FREE!

NO CHANGE OF CARS

From Cincinnati or Columbus to **Baltimore** and but **ONE CHANGE**
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JANUARY 1st, 1870.

Cincinnati to St. Louis Without Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph

Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois

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TRAINS RUN AS FOLLOWS

St. Louis, Evansville and Cairo

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Osgood Accommodation..... 3:10 P. M. 8:45 A. M.

Through Western Express..... 5:10 P. M. 8:30 P. M.

Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.

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2-12-9, 52

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WILMINGTON, DEL.

Established in 1836.

All kinds of Railroad Machinery

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1400 MILES under One Management. 860 MILES without Change of Coaches.

BROAD GAUGE, DOUBLE TRACK ROUTE

NEW YORK, BOSTON,

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PITTSBURG, HARRISBURG

Philadelphia, Baltimore,

And Principal Points in

NEW YORK, NEW ENGLAND

—AND—

Pennsylvania.

This Railway extends from

CINCINNATI to NEW YORK, - 860 Miles.

CLEVELAND to NEW YORK, - 625 Miles.

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AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth

and Hoadley Streets, by Columbus, O., time,

which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A.

M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.;

Mansfield, 1.40 P. M.; West Salem, 2.50 P.

M. (Dine). (Sleeping Coaches through to

New York); Akron, 4.26 P. M.; Ravenna,

5.10 P. M.; Meadville, 8.00 P. M. (Supper);

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ville, 1.40 P. M. (Dine); New York, 3.00 P.

M. Connects at Ravenna with Cleveland &

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Sharon Springs, and at New York with

afternoon trains and steamers for Boston and

New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana,

1.25 A. M.; Galion, 3.58 A. M.; Mansfield,

4.44 A. M.; West Salem, 5.59 A. M. (Bkfst);

Akron, 7.38 A. M.; Ravenna, 8.25 A. M.;

Meadville, 11.20 A. M. (Dine); Hornells-

ville, 6.19 P. M. (Supper); New York, 7.00

A. M. Connects at Mansfield with Pittsburg,

Ft. Wayne & Chicago Railway for Pittsburg,

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with Franklin Branch for Oil City; at

Elmira with Northern Central Railway for

Harrisburg and the South, and at N. Y. with

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cities.

New and Improved Coaches of the style peculiar to the

Broad Gauge, arranged for both Day and Night Travel,

are attached to this train at Cincinnati and run through to

New York, forming the **Only Line** running through

860 Miles without Change.

Boston and New England Passengers,

with their Baggage, are transferred **FREE**

OF CHARGE in New York.

The Erie Railway Company has opened a new

Ferry from their Jersey City Depot to the foot of Twenty-

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ance of a street car or omnibus transfer.

The scenery along the entire route of the Erie

Railway is of the most picturesque and beautiful character.

Admirers of Nature's beauties, in a daylight journey over

this line, will find in its ever changing landscapes sub-

jects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY.

Which can be obtained at the Company's Offices in Cin-

cinnati, 80 West Fourth Street, 115 Vine St., 4 Burnet

House, and foot of Broadway, (Spencer House Block),

and at all principal Ticket Offices in the South and

South-west.

W. B. SHATTUC,

General Southern Agent.

W. M. R. BARR,

Gen'l. Pass'r Ag't

Best Route to St. Louis and Chicago**INDIANAPOLIS,****CINCINNATI****LAFAYETTE RAILROAD**

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,**CAIRO,****CHICAGO,**

Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,

North west and South-west.

The 7:35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

Leave. Arrive.

Indianapolis and Lafayette Mail... 7:20 am 12:40 am

St. Louis and Springfield Express... 2:40 pm 7:35 am

St. Louis and Springfield Express... 10:20 pm 3:42 pm

Lawrenceburg Accommodation... 10:10 am 2:35 pm

Lawrenceburg Accommodation... 4:20 pm 8:25 am

*The 10:20 pm. train will leave Sundays, but not on Sat-

urdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail... 7:00 am 10:15 am

Chicago Express... 6:50 pm 9:30 pm

Harrison Accommodation... 5:30 pm 7:10 am

Through Tickets can be obtained at the Burnet House

Office, corner of Third and Vine; River Office, corner of

Walnut Street and River; and at Depot, corner of Plum

and Pearl Streets. The splendid Passenger Depot of the

I. & C. Railroad is about a mile nearer the business center

of the city than the Depot of any other railroad, and with-

in a few squares of the Postoffice and principal hotels and

Steamboat landings.

J. F. RICHARDSON, Superintendent.

F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

DEPART. ARRIVE.

Eastern Express (Erie Railway)... 7:40 A. M. 6:30 P. M.

do do do... 9:45 P. M. 7:40 A. M.

Toledo, Detroit & Canada... 7:15 A. M. 10:25 P. M.

do do do... 6:30 P. M. 7:40 A. M.

Lima, Fort Wayne & Chicago... 7:15 A. M. 10:25 P. M.

do do do... 2:30 P. M. 5:40 P. M.

do do do... 6:30 P. M. 7:30 A. M.

Sandusky, Cleveland & Buffalo... 7:15 A. M. 5:40 P. M.

Springfield Accommodation... 2:30 P. M. 10:20 A. M.

Sandusky, Cleveland & Buffalo... 6:30 P. M. 10:20 A. M.

Muncie & Indianapolis... 7:15 A. M. 10:25 P. M.

do do do... 5:00 P. M. 1:20 P. M.

Hamilton, Eaton & Richmond... 7:15 A. M. 10:25 P. M.

do do do... 5:00 P. M. 10:20 A. M.

Hamilton Accommodation... 9:30 A. M. 8:45 A. M.

do do do... 6:50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati.

For all information and through tickets, please apply at

the old office, south-east corner of Broadway and Front; Burn-

et House Office, corner Vine and Baker streets, and at the

respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

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The Old And Reliable Route.

Through to Pittsburg without Change.

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ROAD, in connection with the Cincinnati, Hamilton &

Dayton, and Little Miami Railroads, still continue to trans-

port produce and merchandise between Cincinnati and

Pittsburg, Philadelphia, Baltimore, New York or Boston,

and all Eastern points with the greatest promptitude and

dispatch.

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No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

Pittsburg, Pa.

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A.

M. Daily (except Sundays). Stops regularly

at Walton, Ellettsburg, Sparta, Liberty, Worthville, Camp-

bellsburg, Lagrange, Pewee Valley, Anchorage; when

flagged, at South Covington, Maurice, Independence, Bank

Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur,

Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves

Cincinnati at 1.20 P. M. Daily (except

Sundays). Stops only at Walton, Worthville, and La-

grange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M.

Daily (except Sundays). Stops regularly

at Walton, Ellettsburg, Sparta, Liberty, Worthville,

Campbellsburg, Sulphur, Lagrange, Pewee Valley, Anch-

orage, and when flagged, at South Covington, Maurice, In-

dependence, Bank Lick, Verona, Zion, Eagle, C. rolton,

Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cin-

cinnati at 11.15 P. M. Daily (except

Saturdays). Stops regularly at Worthville, Lagrange, and

when flagged, at Walton, Verona, Ellettsburg, Glencoe, Sparta,

Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee

Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington

Trains, arriving at Frankfort at 6.14 P. M., Lexington

7.45 P. M. QUICK TIME.

The Best Route to the South. More Daily Trains

and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Lib-

erty st., connects at Hampton Junction with the Dela-

ware, Lackawanna, and Western Railroad, and at Easton

with the Lehigh Valley Railroad, and its connections,

forming a direct line to Pittsburg and the West, without

change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago,

Cincinnati, St. Louis, etc., with but one change of cars.

Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as

follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk,

Williamsport, Wilkesbarre, Mahoney City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg,

Water Gap, Scranton, Kingston, Pittsburg, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch

Chunk, Wilkesbarre, Reading, Columbia, Lancaster,

Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk

and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the princi-

pal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and

Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,)

for Easton, Allentown, Harrisburg, and the West without

change of cars to Cincinnati or Chicago, and but one

change to St. Louis. Connects at Harrisburg for Erie and

the Oil Regions. Connects at Junction for Stroudsburg,

Water Gap, Scranton, &c. Connects at Phillipsburg for

Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Satur-

days,) for Easton, Bethlehem, Allentown, Reading, Harris-

burg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars

to Pittsburg and Chicago. Connects at Junction with

Delaware, Lackawanna and Western Railroad for all sta-

tions to Scranton. This train will be run to Easton on

Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton

Allentown, Reading, Harrisburg, Pittsburg, and the West

—connects at Harrisburg with train for Williamsport, Erie

The Railroad Record.

E. D. MANSFIELD, - - - - - }
T. WRIGHTSON, - - - - - } Editors.
A. J. HODDER, - - - - - }

CINCINNATI, THURSDAY, DECEMBER, 1, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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WRIGHTSON & CO., Prop'r's.

The Railroad Gateway from the Atlantic to the Pacific—Ohio.

Assuming a railway system, exclusive of all water communication, and the geography of the country presents some singular facts. Some years since we pointed out the fact that no important line of railroad between the eastern Atlantic and the Pacific could be made, except through Ohio. The necessary result of this is that Ohio would be intersected by railroads in every possible direction. Another consequence is, that it is and must be the center of a network of *lateral roads*, which will become necessary to connect important places with the trunk line, and also to connect the deposits of iron and coal with the sections which do not produce them. It may interest the reader and serve to show what the development has been and will be in this line, to trace out the lines made and to be made as part of this central system.

In the first place, as we have noted before, all the eastern trunk lines are *compelled* to come *through* Ohio to reach the great and expanding West. The Valley of Virginia affords the only other outlet from the Atlantic (except through Ohio) which can be availed of to reach the great West. But that route does not naturally reach higher than Memphis, and has long since been used as a great through route from Washington to the South, at Mobile and New Orleans. From the lakes to Memphis, near 500 miles on a line of longitude, all railroads from the Atlantic must go through Ohio. They have done so. The two great New York trunk lines, the Central and the Erie, have been compelled to go the whole length of Ohio in order to reach the great marts in Illinois, Missouri, and one to

the West. The Pennsylvania Central has done the same. The Baltimore road has its line. But going through Ohio in order to reach Western points involves *three great termini* or objects of destination. These are geographical distinctions which can not be avoided by the art of man, unless the objects in view are given up. The first of these objects or systems is the *basin of the North-western lakes*; the second is the *Valley of the Ohio*, and the third is the *South-west*. We have already said that the Valley of Virginia afforded the only available route not through Ohio. But this can only be taken advantage of from the Potomac valley, and is therefore of no value to the great Atlantic cities of commerce, Boston, New York and Philadelphia. These must seek through Ohio, and have done it. Let us now look to the lake basin route. At first sight, it would seem, that we at Cincinnati are not interested in that system. But this is a great mistake. We have a deep interest in one portion of that route. The lake basin system absolutely required the lake shore line, and that was completed many years since. But that line again required, or rather requires (for it is not yet done), a system of lateral roads on the peninsula of Michigan, in order to command the trade of Michigan and that of Lake Superior, by Mackinaw, independent of the circuitous route by Chicago. The peninsula of Michigan presents a geographical phenomena of great interest. It is surrounded by the lakes, except on one side, and on that side lie the Central and Southern Michigan railroads, making on that side (and the only land side) the only land communication with the outer world. It is very obvious that it is a prime interest with those roads to connect laterally with the whole State of Michigan, and especially with the Straits of Mackinaw. It would bring a trade which so far as the East and West are concerned, would be exclusively their own. This is a good fortune which seldom occurs to railroads, and it is quite remarkable that those great corporations have not exerted themselves (as they might well have done) to complete the two great north and south lines of Michigan to the Straits of Mackinaw, viz: the one by Saginaw Bay, and the other by Grand Rapids. The latter has recently advanced very rapidly, and the southern part will, we presume, be finished very soon. The interest which Cincinnati has in the Michigan roads is immense. Those roads go directly South, and meet the two roads, the one by Ft. Wayne and the other constructing through Van Wert, which go directly South to Cincinnati, will connect with the (to be) great Southern road. This constitutes the line which some readers of the RECORD will recollect to have been so strongly advocated by us some twelve or fifteen years ago. That scheme was the greatest and the best ever presented to the people of Cincinnati, and in the southern part of it they engaged with

deep interest. The northern part was to the city less important, but would be attended with great benefits. Northern Michigan is full of pine lumber, beyond her, Canada has illimitable quantities, and it is absolutely certain that in those regions Cincinnati must find for a long time its supplies of pine lumber. Besides all this, Mackinaw *must* (it is not a doubtful matter) become the commercial center of the upper lakes, and hence the immense products of the Northern mines, fisheries, and lumber must be distributed towards the South. Hence it is evident that Cincinnati has a great interest even in the railroad system of the lake basin.

The next system of which Ohio must be the center is that of the Ohio Valley; of this Cincinnati is the great and only commercial center. Situated at the south-west corner of the State, near the line of Indiana, and only across the river from Kentucky, Cincinnati is really *the* city, the commercial mart of those three States. A great many jealousies and local interests have sprung up to prevent the consummation of railroad systems at this point; but the laws of nature are fixed, and will produce their legitimate result; in spite of all human obstructions, will produce their proper effects. Geographically and commercially Cincinnati is and must be the great center of the Ohio valley; and the Ohio valley is the great central section of the central United States; the heart of export and production. Hence, so far as the valley of the Ohio or the great South-west is considered, all the great trunk lines through Ohio *must* come to Cincinnati. This was first seen by the Baltimore and Ohio road, which has been for twenty years engaged in earnest endeavor to complete a through line from Baltimore to Cincinnati and St. Louis. At last it is nearly complete; but still wants the bridge over the Ohio at Parkersburg. We may presume this will soon be finished. This brings us to bridges. *Bridging* the Ohio is as much a necessity for the growth of Cincinnati as it is for the benefit of railroads; but of course the interest of all parties should be consulted. In the Cincinnati discussions it seems to have been overlooked that the great difficulty of high bridges is the difficulty of *grading up* to them; but we shall not discuss that point. After the Baltimore road came the Erie, and recently the Pennsylvania Central has bought up the Little Miami, making the most direct line to New York now in existence. Whether the New York Central intends to have its own trunk to Cincinnati, we know not; but we do know that if they fail to do this, it will be a grand mistake. The movement for a short line to Springfield seems now quite promising; and if it be made it must, we think, be made in the interest of the New York Central. The great system of Ohio roads to all points of the compass is drawing to a completion, and undoubtedly will be unequalled in the world.

Railroads—Their Growth and Future.

It is astonishing to what a height the railroad fever has attained in this country, and we might say throughout the civilized world. Where it will end, and what is to be the result of this excitement, is difficult, if not impossible to foretell. The vagaries of the imagination may fall far short of the actualities that such stupendous efforts as are now being put forth may reach, just as the present is far beyond any prediction made in the beginning of the railroad career of the world by either poet or statesman.

And yet this fever is the result of antecedents, causes that are well understood by our men wise in public affairs, and they ought to know how to control and direct it so as to avoid the calamities experience has proven and alarmists predict we shall be driven into.

It is not to be wondered, that railroads should become the popular want. Material prosperity is the goal of human ambition at this period of the world's history, and thus far in the growth of our country nothing has lifted men along so far and so rapidly to this end as public improvements, and no such improvements equal to the railway. As the railway is the last of these great public benefactors, so is it the best, and the concentration of human skill and ingenuity in practical locomotion. The common road was improved until it may be said to have reached its ultimate, but being unequal in its highest condition to the demands of the country, was superseded by the canal, a thoroughfare that met the wants of the times and contributed largely to the progress of the country. This, in time, in its best condition was unequal to the task imposed upon it, and has been, if not superseded entirely, relieved of its burdens, and its construction rendered unnecessary in all sections of the country not before supplied with it, by the more rapid, and certain, and practical railway.

Since the inauguration of the railway system, however great the changes in their structure and management, there has been no improvement suggested better than they are, and that is likely to supersede them. The efforts are to improve the railway itself, and to render it equal to the increased and unexpected demands made upon it, and thus far it has been capable of a development equal to all this, and adequate to the growing spirit of the age, and to inspire such further improvement as promise to enable it to keep pace with the requirements of the future. Who can say what the railway is capable of? Where is it perfected? What, that has been required of it has it not responded to thus far? Look over its brief history and see how it has risen, the *avant courier* of this rapid age. From the old strap rail to the solid steel track. From the lumbering locomotive, to the smart elegant engine that easily takes

its train 50 miles an hour. From the awkward and inconvenient coaches, to the gorgeous dining and palace sleeping and drawing room cars. From their tortuous courses, that followed the margins of streams, and wound around hills, and went out of the way to keep upon level ground, to the passing of mountains by rising over or going through them, crossing over or under streams, or surmounting all obstacles in its direct course. From the service of settlements of long standing and created traffic, to the reaching across the continent, through the desert and wilderness driving away the savage sons of the forest, and taking into the country the first settlers to make its future business.

Wherever the railway has been carried, it has stimulated such a wonderful material prosperity, and adds daily so largely to the common weal, that every settlement not supplied with this Sampson of modern improvement is anxious to obtain its aid, and the whole country grows excited over the new railway schemes that are proposed, and the results anticipated from their success.

Of the incalculable benefits railways confer upon the people there can be no question. However much they may be loaded down with the blunders and iniquities of projectors or managers, or made the playthings of unprincipled speculators, burdened with fictitious values, they nevertheless carry the load somehow, and if they swamp the shareholders' investment, or victimize the bondholder, they stimulate new industries, invite settlements, build up towns, attract capital, sustain manufacturing, give an increased value to all sorts of products, enhance the value of lands, and in innumerable ways promote the general prosperity to such a height, that to take away the road from the country that has thus enjoyed its advantages, would be to strike the people with the sordest poverty. And so it will continue doubtless, for many years to come, the railway keeping pace with the growth of the country, and finally supplying every section of it whose citizens have enterprise enough to secure its construction, and that can supply it with a living business.

But there is no reason why these gigantic works should sustain such outrageous burdens, nor why they should not be productive upon their cost as well as any other legitimate business, and thus contribute benefits to the stock and bondholders, as well as to the country through which they pass. There are very few railways in the world that are judiciously managed, that do not yield a sufficient revenue to pay upon a fair cost, whereas, under their present loading, that commences with the very inception of the companies that construct them, the paying road is the exception, and many most valuable enterprises have to undergo a legal reorganization to slough off the frands that were crippling their movements. That the reforms necessary to bring about these results will come, are

already evidencing themselves, and will in time be operative and in full force, there can be but little question, but there is a great deal of work to do before this most devoutly to be wished state of affairs will exist. The axe of reform must be applied steadily, strongly, and laid down to the very roots of these shameful errors that disgrace our whole railway system, and places it in the hands of gamblers and thieves.

Narrow Gauge Railways.

We give below a few facts concerning the new gauge railways that may be of value to parties in the State who are considering the propriety of constructing such works. We have given this matter a great deal of examination, and believe that whoever will do so must reach the conclusions we have, viz: that these are the coming railways for the local traffic of America.

There are several of these narrow roads now contemplated in the United States, two that we know of in Ohio. We hope they will go on and prove as they are sure to do, that all we have predicted for them is true.

Railways of the remarkably narrow gauge of three feet six inches are becoming quite popular in Canada, and several short lines are being built in the province of Ontario. One of the recommendations claimed for this narrow gauge is, that very much sharper and more frequent curves are permissible without danger to the train or loss of tractive power by the engine. This makes it especially adapted to a hilly country. There is also an immense economy in the original construction of the road, as well as in the lighter engines and cars. The following is a comparative statement of the cost of one of the narrow gauge roads and the ordinary five feet six inch gauge:

FIVE FEET SIX INCH LINE.	
100 tons rails at \$50 per ton.....	\$5,000 00
Fish plates, bolts and spikes.....	800 00
Sleepers, 2,263.....	700 00
Ballast, 3,000 cubic yards.....	1,200 00
Track-laying	400 00
Total.....	\$8,100 00

THREE FEET SIX INCHES.	
60 tons rails at \$50 per ton.....	\$3,000 00
Fish plates, bolts and spikes.....	400 00
Sleepers, 2,263.....	500 00
Ballast, 2,250 cubic feet.....	900 00
Track-laying.....	300 00
Total.....	\$5,100 00

The first one of these narrow gauge roads in the United States is about to be built from Buffalo to Springville. A party of Buffalo capitalists have recently been to Canada to make inquiries in regard to the new style of railroad, and have come back so well pleased that they have decided to build the line above mentioned.

—The Oregon and California Railroad, it is announced, has graded one hundred miles of the road from Portland, and of that distance, seventy-one miles are laid with rails. Passenger and freight trains are running from Portland to Salem, a distance of fifty-one miles.

Utilizing the Canal.

There seems to be a growing sentiment in this city favorable to making some other use of the canal basins than that for which they were constructed. It is thought there is entirely too much room in a crowded city like ours appropriated to canal uses, and that it may be rendered more valuable by using it for railroad interests, and the canal entry for a grand avenue, there being a sort of rage for avenues with us just now.

We clip the following from the *Commercial* of a late date, as containing some very sensible suggestions upon this matter, and most heartily give the writer our indorsement.

But let us have all the ideas upon the subject. There may be something better than this, and we shall work out the best only by discussion:

To the Editor of the Commercial:

Your article, "A New Improvement Contemplated," in to-day's issue, calls forth the following suggestion of a project to which I have given considerable attention for some years. It is, in short, the conversion of the Miami Canal into a roadway for our entire system of railways, thereby giving a central terminus and through connection for every road which enters or which has been projected to enter the city.

This can be done inexpensively and with light grades and easy curves. There is no engineering obstacle to its accomplishment. To specify, the roads approaching the city from the south-west would diverge from their present routes at the junction below Mill Creek, running northwardly on independent tracks or on those already laid on either side of the creek, to a point north of the Brighton House, where the canal curves, seemingly for the very purpose of receiving them; the roads from the north would naturally converge near the bend of the canal, opposite Cumminsville; should the "Short Line" tunnel ever be utilized, its natural point of contact would be near Hunt street, below the level of Broadway; roads entering from the east would reach the canal at the first lock, just above Broadway, running under the streets west of Front street; the road over the Newport bridge would run above the same streets on a line the direct continuation of the line of the bridge and nearly parallel with Butler street, and enter the canal at the same point, thus overcoming the much talked of difficulty of "approach."

The topography of our city is such that all railroads, approaching from whatever direction, can find a central, up-town station through the bed of the canal more easily than by any other route.

A series of passenger stations, each similar to that of the Indianapolis and Cincinnati Railroad at Plum street—not a "Union Depot"—about the elbow of the canal would give us the most accessible up-town depots possible, and any points from Broadway to the Brighton House could be made available for freight depots, leaving ample room for a double track throughout the entire line. The natural concomitant of this movement would be the dredging of Mill Creek and the formation of a safe harbor which the widening of the bridge-spans at its mouth—rendered possible by the accomplishment of this project—would make available.

The control of so important a link in our communications should remain vested in the city. It would require but slight alteration of the charter of our projected Southern Railroad—regarding this as the terminal connection—to place the whole matter in the hands of its trustees.

My object here is simply suggestion. I will not attempt to elaborate a plan nor to argue in its favor. I submit that such an improvement, if accomplished, would be of more commercial advantage to the city than could an avenue, however beautiful. H. C.

Cincinnati Southern Railway.

As evidence of the feeling of the people of Kentucky in relation to the grant asked for by the Trustees of the Cincinnati Southern Railway, of the Legislature of that State, to enable the road to be built through Kentucky, we print below the official reports of proceedings of several meetings recently held in behalf of the enterprise. The meetings were held in sections remote from the proposed route, and have, in consequence, a deep significance.

"At a meeting of the citizens of Calhoun, and the vicinity, in McLean county, Kentucky, held at the Baptist Church, on Wednesday, November 16, after very eloquent and able speeches by C. B. Simrall, Esq., of Kenton county, and Col. R. S. Bevier, of Logan county, on the interests of Kentucky in the Cincinnati and Chattanooga Railroad, it was moved and seconded that our Senator and Representative be requested to vote for the passage of the bill through our next Legislature for granting the right of way through the State for said road, under suitable charter restrictions. Said motion was voted upon and was carried, there being only one dissenting voice. J. C. TOSON, Chairman.

A. C. TANNER, Secretary.

At a large and enthusiastic meeting of the citizens of McLean county, Kentucky, at Livermore, on Thursday, the 17th of November, 1870, after listening to the speeches of C. B. Simrall, Esq., of Kenton county, and Colonel R. S. Bevier, of Logan county, in favor of the Cincinnati and Chattanooga Railroad, it is

Resolved, That we indorse the resolutions adopted at the Railroad Convention held in Lexington, Kentucky, October 10, 1870, and that we hereby instruct our Senator and Representative to vote, in this Legislature, next winter, in favor of granting a right of way through Kentucky to the Cincinnati and Chattanooga Railroad."

W. H. HILLSMAN, Chairman.

JOHN W. BELT, Secretary.

At a large meeting of citizens of Ohio county, Kentucky, held in the Court house in Hartford, on Friday, November 18, for the purpose of bearing the speeches and arguments of C. B. Simrall, Esq., of Kenton county, and Colonel R. S. Bevier of Logan county, on the interests of Kentucky in the proposed Cincinnati and Chattanooga Railroad, on the motion of the Hon. H. D. McHenry, the following resolution was adopted:

Resolved, That it is the sense of this meeting that a fair charter should be granted to the Cincinnati and Chattanooga Railroad, and that we see no valid objection to the bill that was pending before the Legislature last winter, and we here express our hope that our Senator and Representative will vote for the bill, and we respectfully request them to do so at the ensuing session of the Legislature."

The Western Rural—An Office Opened at Columbus.

The prosperity of this popular Farm and Family Weekly is unprecedented, and its subscribers may now be found in every "nook and cranny" of the great West. Its plan of two offices, and two separate editions, at Chicago, Ill., and Detroit, Mich., has proved so satisfactory to all concerned, that a further extension has been determined on. Commencing with Jan. 1st, 1871, editions will be published at Columbus, Ohio, and at Kansas City, Mo. The offices will be opened at these places about Dec. 1st. The Columbus edition will be prepared with especial reference to the needs of its subscribers in Ohio, and the Kansas City edition designed especially for those in the States of Missouri and Kansas. A competent editor will reside at each place. Each edition will contain all matter of general interest that appears in either of the others, while each will give, also, much matter, such as markets, etc., of more particular importance to the readers of each, as determined by their locality and respective circumstances and needs. It is only \$2.00 per year.

Magnificent Premiums are given for Clubs of subscribers, from *Two to Two Hundred*. Clubs can be raised in every village, school, district or neighborhood. Write for Premium List. Specimen numbers sent free. Address H. N. F. LEWIS, Publisher, at either Chicago, Ill., Detroit, Mich., Columbus, O., or Kansas City, Mo.

PITTSBURGH, FT. WAYNE & CHICAGO RAILROAD—We are indebted to Commissioner Wright, of Ohio, for the following statement of condition and operations for the year ending June 30, 1870:

Total capital stock, all paid in, \$10,714,285 74; increase since June 30, 1869, \$8,214,285 71; total funded debt, \$13,633,000; floating debt, \$18,229 62; decrease of floating debt since June 30, 1869, \$79,863 65; total debt and stock, \$33,395,515 33; total cost of road and entire equipment up to June 30, 1870, \$24,685,255 20; length of main line, 468 3-10 miles; length of branches, 35 miles; length of single track in Ohio, 251 3-10 miles; length of branches, 144-10; sidings and other tracks, 68 3-10 miles. Total length of track in Ohio, 334 miles. There are on the road 221 locomotives, 119 passenger cars, 54 express and baggage cars, 3,334 freight cars, and 56 other cars. There were carried during the year 1,857,949 passengers, at an average rate of 27-10 cents per mile, and 717,694 tons of through freight, and 910,622 tons of local freight, at an average of 11-10 cts. per ton per mile. The earnings from passengers are \$2,619,218 03; freight, \$4,697,551 49; mail, \$93,900; express, \$132,241; other sources, \$106,702 74;—total, \$7,649,542 26. Total operating expenses for the year, \$4,325,906 61; net earnings, \$3,323,606 65. Total receipts from all sources, \$7,649,543 26; total operating expenses, and all other payments, \$7,415,925 71; balance, \$233,587 55.

Railroads of Ohio.

Condensed from the report of the State Railroad Commissioner:

CINCINNATI HAMILTON & DAYTON RAILROAD.

Capital stock, \$3,500,000; amount per mile of road, \$58,333 33. Funded debt—1st mortgage bonds, \$1,250,000; 2d do., \$500,000; 3d do., \$282,000; total, \$2,032,000. Decrease floating debt since June 30, 1869, \$326,050; amount debt per mile of road, \$33,866 66; total amount stock and debt, \$5,532,000; total amount stock and debt per mile, \$92,200. Cost of construction, \$3,974,404 73; cost of right of way and real estate, \$339,180 34; cost of equipment, \$995,750 96; total cost, \$5,309,336 03; cost per mile, \$88,488 93.

Length of road in miles (single track), 60; length of double main track, 12 3-20; length of sidings and other tracks, 17; miles in double gauge, 87. Total length of iron, 176 3-20. Wooden bridges, 15; locomotives, 33; passenger cars, 32; express and baggage, 13; freight cars, 426; other cars, 46; persons operating road, 728.

Rate of motion allowed passenger trains is not limited; average rate including stops is 28 miles per hour.

Highest rate per mile for shortest distance passengers are carried, viz.: 1 mile, 30 cents; for less than 5 and more than 15 miles, 5 cents; more than 15 and less than 30, 4 cents; more than 30 and for all other distances through and otherwise, 3½ cents.

	1st class.	2d.	3d.	4th.
Highest rate per ton per mile for shortest distance freight is carried (in cents).....	20	16	12	10
For more than 15 and less than 30 miles.....	7	6½	4½	4
For more than thirty miles.....	5	5	4½	4
Through rates.....	4½	3-7-10	3	1-4-5

Passengers carried, 735,017; tons freight, 419,350; cords wood consumed, 15,581; tons coal, 3,435.

Passenger earnings through...	\$82,324 07
Passenger earnings, local.....	338,106 28
Freight earnings, through.....	150,998 04
Freight earnings, local.....	355,647 47
Mail earnings.....	8,750 00
Express earnings.....	14,851 39
Other earnings, (rent of track, etc.).....	244,397 71

Total\$1,195,074 96
Operating expenses..... 648,273 67

Net earnings..... \$546,801 29

Taxes paid—State, \$44,236 70; national, \$13,185 74. Animals killed—horses, 2; cows, 7; amount paid for them, \$235. Accidents—persons killed, 5; injured, 4. The road is all ballasted with gravel and fenced.

Officers—President and General Superintendent, Daniel McLaren; Vice President, John Young; Secretary and Treasurer, F. H. Short, all of Cincinnati; Assistant Superintendent, Lewis Williams; General Ticket Agent, Samuel Stevenson; General Freight Agent, Lafayette Devenny.

CINCINNATI, RICHMOND & CHICAGO RAILROAD.

Capital stock, \$382,600; amount of stock per mile of road, \$10,627 75; funded debt, first mortgage bonds, \$560,000; second mortgage bonds, \$65,000; floating debt, \$22,394 89; increase of floating debt since June 30, 1869, \$20,305 39; total debt, \$647,394 89; debt per mile of road, \$17,983 18; total stock and

debt, \$1,029,994 80; total stock and debt per mile, \$28,610 95; cost of construction and right of way, \$826,733 29; cost of equipment, \$120,451 98; cost of other items, \$700. Total cost, \$947,885 27. Cost per mile, \$26,330 15. Length of line in miles, main, 36; branch, (leased,) 6; total length of iron in Ohio, 38.55; number of bridges in Ohio, (wood,) 22; number of locomotives, 6; number of passenger cars, 3; number of express and baggage cars, 3; number of freight cars, 61; number of other cars, 6; number of persons operating road in Ohio, 63.

Highest rate per mile for shortest distance passengers are carried, 10 cents. For more than 5 and less than 15 miles, 5 cents. More than 15 and less than 30, 4 cents. For longer distance and through rates, 3½ cents.

	Class 1st.	2d.	3d.	4th.
Highest rate per ton per mile for shortest distance carried.....	20	16	12	10
For more than 15 and less than 30 miles.....	7	6½	4½	4
For more than 30 and less than 50 miles.....	5	5	4½	4
For more than 50 and less than 100 miles.....	5	5	4½	3½
For whole length main road in Ohio.....	5	5	4-1-6	3½
Through rates.....	4½	3-7-10	3	1-8-10

Number passengers carried, 69,472; number tons freight carried, 35,670; number cords wood consumed, 3,311.

Passenger earnings { through.....	\$2,534 93
{ local.....	50,168 82
Freight earnings { through.....	1,588 81
{ local.....	46,655 46
Mail earnings.....	3,600 00
Express earnings.....	3,186 99
Other sources.....	225 36

Total\$107,960 37
Operating expenses..... 83,074 90

Net earnings..... \$24,945 47

Taxes paid in Ohio, \$3,656 88; taxes paid in Indiana, \$182. National taxes, \$1,393 42. Animals killed, 3; amount paid for them, \$171 02; persons killed, 1.

The road is all ballasted with gravel.

The American Express Company runs upon the road, paying \$60 per week for 24,000 pounds, and 16 cents per 100 pounds excess.

Officers.—President and General Superintendent, Daniel McLaren, Cincinnati; Secretary and Treasurer, F. H. Short, Cincinnati; General Ticket Agent, Samuel Stevenson; General Freight Agent, Lafayette Devenny. CLEVELAND, COLUMBUS, CINCINNATI & INDIANAPOLIS RAILROAD.

Capital stock, \$11,620,000; amount of stock per mile of road, \$29,718 67; proportion of stock for Ohio according to miles of road, \$9,123,631 69. Funded debt—First mortgage bonds (sinking fund), \$1,999,000; second mortgage bonds (B. & L.), \$651,000; second mortgage bonds (C. C. & C.), \$350,000; total \$3,000,000. Increase since June 30, '69, \$1,003,000. Amount of debt per mile of road, \$7,672 63; proportion of debt for Ohio according to miles of road, \$2,355,497 41; total stock and debt, \$13,620,000; total stock and debt per mile, \$37,391 30; total stock and debt for Ohio, \$11,479,129 10; cost of road

and equipment, \$12,160,030; cost of road and equipment per mile, \$31,102 12; proportion of cost for Ohio, \$9,548,350 84. Length of line in miles, main, 341; branch (Springfield,) 50; length of line in Ohio, 257; length of double main track, 18; length of sidings, etc., 46; length of double gauge, 18; total length of iron in Ohio, 389. Number of bridges, wood, 23; number of bridges, iron, 2; number of bridges, stone, 8; number locomotives, 87; number passenger cars, 47; number express and baggage cars, 20; number freight cars, 1,455; number other cars, 13. Number persons operating road in Ohio, 1,750. Highest rate of speed allowed passenger trains when in motion, miles per hour, 35; average rate, including stops, 30; rate per mile charged first class passengers (in cents,) 3½; rate per mile charged second class passengers (in cents,) 2½; rate per mile charged third class passengers (in cents,) one.

Rate for freight per mile per ton for all distances in Ohio, in cents, (first class,) 5½; rate for freight per mile per ton for all distances in Ohio, in cents, (second and third classes,) 3 7-10; rate for freight per mile per ton for all distances in Ohio, in cents, (fourth class,) 3½; rate for freight per mile per ton for all distances in Ohio, in cents, (fifth class,) three. Through rates for first class, 3½; second class, three; third class, 2½; fourth class, 1½; fifth class, 1½. Passengers carried, 583,694; tons of freight carried, 831,644; cords wood consumed, 78,440; tons coal consumed, 415.

Passenger earnings, through.....	\$354,287 00
Passenger earnings, local.....	499,526 20
Freight earnings, through.....	1,050,760 22
Freight earnings, local.....	1,113,900 23
Mail earnings.....	61,993 00
Express earnings.....	78,919 56
Other sources.....	72,723 43

Total.....\$3,232,109 64
Operating expenses for the year.. 2,173,650 29

Net earnings.....\$1,058,459 35

Taxes paid in Ohio, \$85,497 15; in Indiana, \$10,961 84; national taxes, \$67,486 47. Persons killed in Ohio, 16; persons injured in Ohio, 8.

The road is ballasted 20 miles with stone, and the remainder with gravel. The entire line is fenced.

The American Union and United States Express runs upon the road; also the following freight lines: Merchants' Despatch, Empire Transportation Company, Union Star Line, White Line, Central Transit Company, South Shore Line.

Officers.—President, L. M. Hubby, Cleveland; Vice President, Oscar Townsend, Cleveland; Secretary and Treasurer, Geo. H. Russell; Engineer, F. Ford; Superintendent, E. S. Flint; Auditor, A. Ely, Jr.; General Ticket Agent, T. F. Pierson; General Freight Agent, L. Hills.

CLEVELAND & MAHONING RAILROAD.

This road extends from Cleveland to Youngstown, and is leased by the Erie Railroad Company. Capital stock, \$2,056,750; amount stock per mile of road, (75 miles,) \$27,423 33. Funded debt—1st mortgage bonds, \$827,000; 2d do., \$100; 3rd do., \$654,500; Hubbard branch bonds, \$127,500. Total, \$1,609,100. Less in sinking funds, \$323,600; decrease of funded debt, \$43,000; amount debt per mile of road, \$17,140; total amount stock and debt, \$3,342,250; do. per mile, \$44,563 33; cost of construction,

\$3,147,934 24; do. per mile, \$41,972 45. Length of road—main line, 67 miles; Hub-bard branch, 8 miles.

Officers—President, Joseph Perkins, Cleveland; Secretary and Treasurer, George Mygatt, Cleveland.

This road is leased for ninety-nine years, for \$274,272 per annum, in monthly installments in advance of \$22,856.

The company paid during the year, two dividends of 3½ per cent. each, amounting to \$143,972 50; paid government tax on same, \$7,577 50. Total, \$151,550. Paid interest coupons, within the year, \$88,248 82; paid government tax on same, \$4,644 68. Total \$92,893 50. Paid of bonded debt, \$43,000. Total amount paid during year, \$287,443 50.

NILES & NEW LISBON RAILWAY.

This road extends from Niles in Trumbull county through New Lisbon, Columbiana county. It is completed from the former place to a point two miles below the latter, and is thirty-eight miles long. Capital stock, \$500,000; funded debt (first mortgage bonds,) \$500,000; floating debt, \$18,942 54; cost of road and equipment, \$568,044 08; bridges (wood,) 3; persons operating road, 10; animals killed, 4.

Rate per mile for shortest distance passengers are carried, 5 cents; for over 5 miles, 4½ cents.

Highest rate per ton per mile for freight—first class, 15 cents; second class, 12 cents; third class, 10 cents. New iron laid during the year, (miles,) 25, passengers carried, 19,117; tons freight, 38,000.

Passenger earnings.....	\$9,558 70
Freight earnings.....	28,519 52
Express earnings.....	403 85

Total.....	\$38,482 07
Operating expenses.....	20,804 18

Net earnings..... \$17,677 89

The Merchants' Union Express Company runs on the road and pays 25 cents per 100 lbs. National and State taxes, \$455 63. One-fourth the road is fenced.

Officers.—President and Treasurer, C. H. Andrews, Youngstown; Secretary, Ben. Cunningham, New Lisbon; James M. Bond, Youngstown, Superintendent, C. W. Bradley, Niles.

SEPARATION OF WOOL FIBRE.—The wool fibre of old rags and carpets, made of a combination of wool and cotton, or linen threads, can be separated by the use of metallic chlorides or sulphates, the chloride of aluminum being the most available. To obtain the latter, 100 pounds of the sulphate of aluminum is dissolved in 100 gallons of hot water; on adding to this solution 50 pounds of common salt, a chemical change produces sulphate of sodium and chloride of aluminum. After the rags have been saturated with a solution of chloride of aluminum, the excess of liquid is drained off and the material heated to about 200° F. The chloride of aluminum is decomposed during this process, and the volatile products acting on the cotton or linen decompose it, while the animal fibre remains unchanged, and on being rubbed up or carded the vegetable matter is separated in the form of dust. In some cases it is found to be more effective to first immerse the rags in a strong solution of sulphate of aluminum, and then place them in a saturated solution of common salt, which is boiled until the decomposing or rotting process is complete.—*Economist*.

The Pacific Railways.

The annual report of the Secretary of the Interior makes the following allusion to the Pacific railroad enterprises:

The subscriptions to the stock of the Union Pacific Railroad Company amount to \$33,783,000, of which \$33,762,300 has been paid. The total receipts of the road for the year ending June 30, 1870, were \$8,344,367 08; expenses, \$5,649,573 55; net earnings, \$2,694,797 63. The entire cost of the road at that date was \$108,722,130; the amount of indebtedness of the company, \$76,480,698 61, of which \$27,236,514 were for United States bonds. A copy of the consolidation articles of the Central Pacific Railroad has been filed in this Department. Stock to the amount of \$48,400,100 has been subscribed, and \$48,378,740 paid. The receipts from the transportation of passengers and freight for the year ending June 30, 1870, \$6,070,172; expenses, \$3,542,212; net earnings, \$2,527,690. The indebtedness of this company amounts to \$67,079,780, of which \$27,851,000 was to the United States.

The stock subscription of the Central Branch of the Union Pacific Railway is \$1,000,000, of which \$980,600 has been paid. The expenses on account of road and fixtures have been \$3,723,700. Stock of the Kansas Pacific Railway to the amount of \$5,072,500 has been subscribed and paid in. The indebtedness of the company is \$18,462,350, of which \$6,303,000 was to the United States. The cost and construction of 533 miles of main line is estimated at \$26,000,000. The initial point of the Pacific Railroad is near Springfield, Mo. Fifty miles are now completed, at a cost of \$2,769,840. The company has issued bonds, secured by mortgage on its lands, to the amount of \$3,000,000. The amount of stock of the Sioux City & Pacific Railroad already subscribed is \$3,470,000, of which \$1,788,000 has been paid. The cost of the road is \$4,644,432; indebtedness, \$5,044,320. At the close of the last fiscal year the amount of subscription stock of the Southern Pacific Railroad was \$1,800,000; actually paid in, \$280,000. It has contracted for the purchase of the San Francisco & San Jose Railroad for the sum of \$2,770,000 gold, payment to be made and possession taken by the 31st of December next.

The Northern Pacific Railroad filed maps designating routes of road. Instructions were thereupon issued for the withdrawal in Wisconsin, Minnesota and Oregon of odd numbered sections of land, to which adverse rights had not attached, within twenty miles, and in Washington Territory south of the Seattle. Of such sections within forty miles each side of the road.

The Union Pacific Railroad Company, southern branch, now the Missouri, Kansas & Texas Railroad Company, the Kansas & Neosho Valley Railroad Company, and the Leavenworth, Lawrence & Fort Gibson Railroad Company, were fully heard in the right of their respective companies, to construct railroads from the southern boundary of Kansas through the Indian Territory. I also considered the objections of representatives of certain Indian tribes, through whose lands the projected lines of road would pass. After a most careful examination I reached the conclusion that the existing laws and treaties authorized the construction of one railroad on certain conditions, which neither company had then performed. On a subsequent hearing it was shown that the first named compa-

ny had completed its road to a designated point on that boundary, and I hold that it was entitled to extend its line through said territory.

CHANGE IN RAILROAD OFFICIALS.—At the annual election of officers of the Cincinnati, Hamilton and Dayton Railroad Company, held in May last, Mr. Lafayette Devenny, who for two years past had occupied the office of General Freight Agent, declined re-election, but consented to serve in that capacity until the appointment of his successor, which has been delayed until the present time. Mr. J. R. Reed, who for some eight or ten years prior to the election of the present incumbent, filled the position, has been tendered, and has accepted his old place—which, by-the-way, he was compelled to vacate by reason of declining health. He will commence duty on the 1st proximo.

In severing his connection with the Company, Mr. Devenny will be accompanied with the sincere regrets and earnest well wishes of the hosts of friends he has made during his term of office among his associates in both railroad and commercial circles. Under his management the freight business of the road has largely increased, especially during the past six months.

Mr. Reed, the incoming General Freight Agent, is thoroughly familiar with the arduous duties of the position, and is well and favorably known by our prominent business men, and highly esteemed in the railroad world.—*Com.*

—The following is the official statement of the land department, Union Pacific Railroad, from July 28, 1869, to October 4, 1870: The Union Pacific Railroad sold 240,344 19-100 acres, for which they received \$1,106,049 32, or an average of \$4 60 per acre. The company cancelled \$618,000 of their land grant bonds, received in payment for their lands. The trustees hold \$400,000 in settler's notes, secured by mortgage on land sold, and \$50,000 in cash, to be appropriated to further purchases of land grant bonds. The Union Pacific Railroad have 11,750,000 acres of land remaining unsold.

ORGANIC MATTER IN WATER.—Dr. Heisch being informed by a lemonade manufacturer that he had suddenly found it impossible to make an article that would keep, experimented upon the water used, and found that a few grains of pure sugar would cause it to be filled in a few hours with small spherical nucleated cells. It turned out that the water had been slightly contaminated with sewage. A minute quantity of sewage water to a sugar solution, soon brought forth similar cells. Filtration through the finest paper would not remove the germs, nor would boiling for half an hour destroy their vitality. Filtration through animal charcoal, however, removed them.

TO CLEAR A HOUSE OF VERMIN.—"Burleigh," of the Boston Journal, says: "I tell you ladies a secret that may be worth the knowing—a new way to clear your house of vermin has been found. So complete is the remedy that men offer to rid premises of these pestilential nuisances by contract. The article is sold under the name of French green, and other high sounding names, but the article is dry green paint. Six cents worth' used about any house will clear the kitchen and all the surroundings.

The Suez Canal.

During the excitement of the war in Europe the Suez Canal has been lost sight of in the newspapers. Even M. Lesseps himself, the engineer, has been more interested in the passage of the Empress Eugenie from Paris to England than in the passage of ships from the Mediterranean to the Red Sea. It was his presence of mind which secured her escape from the Tuilleries; and we hope that he and all the world will soon be enabled to turn from the casualties and misfortunes of war to the more profitable and agreeable themes and pursuits of peace. Meanwhile the canal has been quietly doing all the work which had offered. This was not so much as the stockholders could desire, as the season of the year and the interruption of the war very sensibly diminished trade. It is now admitted that the canal must prove a success for the commercial world, and at no distant day for an enlarged circle of owners. The canal has been dredged, wherever necessary, through its whole length. The minimum depth is now twenty-two feet, except at one point where it is only twenty-one. The greatest need now is, that the channel should be widened, so that steamers can pass each other with ease. At present vessels are compelled to wait at ridings. Between the banks of sand and marl, the canal is said to resemble a single line of railroad, in a deep cutting, flooded with water. But, even an English critic now admits that the widening of the canal is only a question of time. It is evident that the whole of the richer trade between Europe and the East will use the canal, and so will all the American trade, except that with the Pacific coast. As trade finds its way through this channel the necessity of converting the canal into a wide and permanently quayed river must force itself upon the commercial nations. The banks of the canal seem firm, and there are no signs of the drift which was apprehended.

The traveler from whose narrative we draw the above facts, passed through the canal in September in the British steamship Nestor. The vessel is of 1414 tons, is 340 feet long, and drew nineteen and a half feet of water. The Nestor, in addition to her own steam power, was pulled by a tug, by aid of which the head of the large steamer was kept to her course. The "Bitter Lakes" have now become a large sea, swarming with fish. These animals, whose convenience was never contemplated by M. Lesseps, find their way to a new resort, toll free, and without the aid of pilots. The place which was of late merely a depression in the desert, now returns to what was probably its earliest condition.

The Nestor passed through the eighty six miles of canal in about fourteen hours, and at a cost, including tug, and pilotage and tolls, of less than £700. It is estimated that about 8,000 tons a day must pass through the canal, at a charge of ten francs per ton, in order to pay the shareholders a moderate interest—say five or six per cent.—and to pay for repairs and maintenance. Eight vessels of 1,000 tons would do this; and certainly there can not be much doubt that the passage of vessels each way must amount to five or six at least. Time will show, we judge, that by some means or other the Suez Canal, the latest wonder of the world, will be kept up. It may indeed convert the desert which it traces into a populated district. Already Ismailia is said to excel Alexandria in attractiveness and convenience.—*Public Ledger.*

THE NORTHERN PACIFIC RAILROAD ROUTE.—Professor Davidson, at a recent meeting of the San Francisco Academy of Sciences, stated that his observations up the northern coast of California did not sustain the often repeated assertion as to the moderate snow fall on the route of the North Pacific Railroad. He quoted from official records the fact that, in Snoqualamie Pass, through which the survey passes, a tree stump stands sixteen feet high, which marks where a tree had been felled with an axe when the snow was thirteen feet deep, the chopper standing on the top of the snow crust. Professor Davidson also stated that General Isaac J. Stevens, who, in 1855, made a reconnaissance of the route, and asserted the mildness of the climate, went over the country in the summer, and personally knew nothing of the aspect of the passes in winter.

RAILROAD GAZETTE.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27



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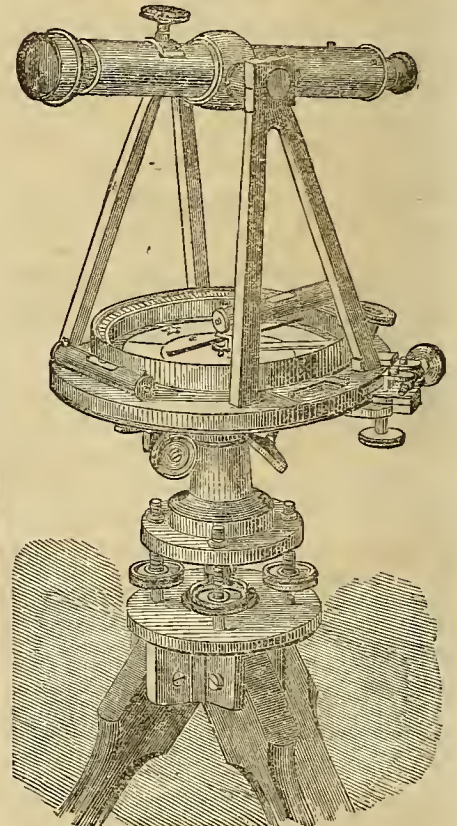
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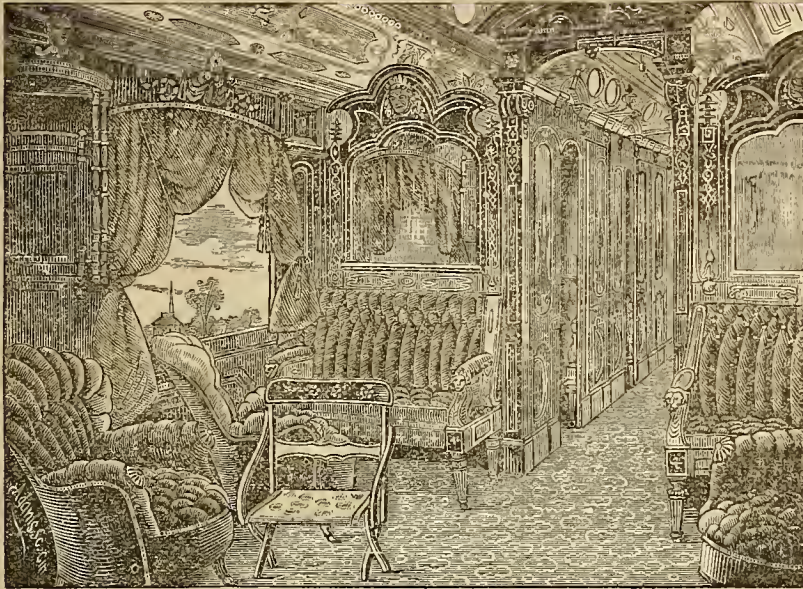
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The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

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(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS.

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

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Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail...	7.20 am	12.40 am
St. Louis and Springfield Express...	2.40 pm	7.35 am
St. Louis and Springfield Express...	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.30 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7:00 A. M.	6:30 P. M.
do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do	2:30 P. M.	5:40 P. M.
do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:30 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do	5:40 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do	5:30 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do	.....	6:50 A. M.

Trains run **SEVEN MINUTES FASTER** than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

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W. P. SHINN, General Freight Agent.

Pittsburg, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati **7.20 A. M.** Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville **12.65 P. M.**

No. 6 SOUTHERN FAST LINE leaves Cincinnati at **1.20 P. M.** Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville **5.20 P. M.**

No. 8 MAIL leaves Cincinnati **5.00 P. M.** Daily (except Sundays). Stops regularly at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville **10.00 P. M.**

No. 10 NIGHT EXPRESS leaves Cincinnati at **11.15 P. M.** Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at **5.00 A. M.**

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at **6.14 P. M.**, Lexington **7.45 P. M.**, **QUICK TIME.**

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

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FAIR ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckhannock &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:30, 8, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

J. S. LOWIE, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
A. J. HODDER, - - - - - }

CINCINNATI, THURSDAY, DECEMBER, 8, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

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The North-western Railroads, in Connection with Cincinnati.

In another article, we have shown briefly the connection of Cincinnati with the peninsula of Michigan, and with the great eastern trunk lines. To the latter there is a necessity for branch lines over the peninsula; and to the former a necessity for these lines being continued through Indiana and Ohio, to Cincinnati, in order to bring in the trade of the northern lake basin. In order to do this, these lines must connect at Mackinaw. The great problem is often slow in coming to inevitable conclusions. Perhaps this is a consequence of the slow advance of the great waves of civilization. Years ago, the writer of this article sat down before a table (on which was outspread a map of Ohio and the Northern Lakes), and pointed out to his friends Toledo at the northern end of Lake Erie, and at its junction with the Maumee, as the site of a great city. Years after that the village was but just begun. Twenty years ago, it was only a respectable town. To-day, Toledo has more than 30,000 inhabitants, and will beyond all doubt be a large city of the second magnitude. This is, in our country, rather slow progress; but the question is settled, and soon Mackinaw will also grow up to a city. Around it roll the great inland seas of the north, and from that point must be distributed all the trade of the northern lakes, which is to go to Michigan, and a large part of Ohio and Indiana, and thence over the Southern road (when will it be?) throughout the South. This is a necessity, an inevitable

part of the future, and were it put off half a century it must finally come. If you doubt this, look at Cleveland and Chicago. Cleveland has grown up with extreme rapidity, in no small measure by manufacturing the iron and copper of Lake Superior. Cleveland wants no railroad for this purpose, because it has water communication the whole way and thus has an immense advantage over Pittsburg. In Cleveland are made 80,000 tons of manufactured iron, and 1,500 tons of copper. At Mackinaw, the iron of Lake Superior would be just as easily handled and manufactured as the iron of Mahoning. But we need not dwell on this further than to say, that to Cincinnati an early and direct connection with the great central point of lake navigation is as necessary as it is with Cleveland or with the South. In these days, when a railroad line of 1,000 miles is no longer, or more difficult of transportation than a turnpike of 50 miles was half a century ago, we must not be afraid to look to distant points for trade and resources. The iron of Lake Superior is peculiar, and is actually at this time imported and manufactured in the interior of Indiana. The pine lumber of Michigan and Canada is, as we observed before, indispensable to Cincinnati.

Let us look at the connections of Cincinnati with the North-west geographically, and see if it be possible to connect northern central America with Cincinnati in any other way than by a direct railroad to Mackinaw. Suppose we draw a straight line from this city through Chicago, or the south end of Lake Michigan, to the Saskatchewan valley, which it will strike in the upper part of that valley. This straight line, if it be possible, is, as we all know, the utmost possible economy of distance which it is possible to accomplish by railroad, and which in fact is rarely, if ever, practicable. Now, that railroad would have all of Wisconsin, the largest part of Minnesota, and the largest part of the Saskatchewan valley east of it and not reached. How are you going to reach this immense, and, in future times, wonderfully productive country? If you look on your map, you will see all of Wisconsin, all of the upper half of Minnesota, and all the immense valley of the Saskatchewan, must seek some point on Lake Superior, as the outlet of their trade and productions. It matters not where that is, but once on Lake Superior, the whole of this trade must pass the straits of Mackinaw, and hence, if Ohio and Indiana want to participate in this immense north-western trade, far greater than any which will go through Omaha, then the point to be made is Mackinaw. Like Chicago when it was unknown, like Toledo till very lately, Mackinaw may be neglected or overlooked, but its day is coming with absolute certainty, and Cincinnati must connect herself with Mackinaw.

Pursuing this train of convictions, we may add that the Northern Pacific Railroad will

be in all respects superior to the Union Pacific for reasons which are now obvious to all who examine the subject.

1. The Northern Pacific will be at least 1,000 miles shorter from the head of Lake Superior to China than it is from the Mississippi to the same point.

2. It passes through a far richer and better country; so that the settlements on the line of the Northern road will be made much more rapid, and much more dense, so that the local traffic on the road will in a short time be much greater.

3. And, notwithstanding the road will be in a higher latitude, the road is in a better climate. Those who want full information on this subject may find it in the explorations made by the Government.

4. The immense Saskatchewan valley to the North must sooner or later be densely populated, because there is good land and good climate there; that is for a northern climate, where grass and small grain can be grown abundantly. We see plainly, therefore, that from the peninsula of Michigan, through Wisconsin, Minnesota, Dakota, and the western British Possessions, there must be, probably at an early day, an immense population. We see, too, that Lakes Superior, Huron and Erie will be the great inland seas which will bear the great mass of this north-western commerce. Is there any necessity that all this commerce should be borne off to New York and Boston? Not at all. On the contrary a very large portion of that commerce, even if it be carried to New York and Boston, must ultimately find its terminus in the South.—Hence we come back to the ideas we have always advocated, that there must be a southern road for Cincinnati on one side, and a direct line to Mackinaw on the other. Then we should have the grand artery which connects the northern lakes and the southern seas, which bears the fruits of the North to the Tropics, and those of the Tropics to the lakes. Of this great artery Cincinnati will be the central point, and on either side she can send her manufactured products to market. If she had the energy and foresight which can see and take hold of these things, she might hold these lines herself, and carry her wares to market cheaper than they can be carried from any other point. This would indeed be a triumph of commercial sagacity and enterprise, worthy of the age and of America.

—An exchange says that an apparatus has recently been invented which promises to do away with the annoyance and danger arising from the cinders and sparks that are constantly flying from a locomotive's smoke-stack. By means of a simple but ingenious contrivance, the cinders are taken from the smoke-stack and carried into the fire, where they are consumed, and thus add to the heat. The invention has been satisfactorily tested on the Nashua road.

Good Sense.

We give a place to the following article, clipped from last Sunday's *Commercial*, not because there is anything new in it, but because it is another evidence of the good sense of a plain, thinking man.

All the fine writing that has been called out by the vexed bridge question fails to solve the problem as this short article does; and we opine, before the controversy is through, the wiseacres who are now managing these matters will be found in the tracks of this sensible citizen.

The bridge men, and the railroad men, and the men who are in tantrums upon this question, need but look this ground over carefully to be convinced at once that here is the way to cure all the troubles this subject has created, and at the same time serve every interest concerned.

WALNUT HILLS, Nov. 29, 1870.

To the Editor of the *Commercial*:

I see in your issue of to day an article in regard to the bridge question, the writer favoring the crossing of the river above here, at a point opposite Dayton, Kentucky, which is probably better than to cross at the present proposed point. But that will make it out of the way considerably for the business of this city, and I think that if the city authorities and business men would take the interest of themselves and the city of Cincinnati at heart, they would not think of letting this bridge, for a moment, go to any other point. The hue and cry has been for some time, Let us have a Southern Railroad, and now when the stepping stone to such a result is about to be consummated, there is a great hue and cry made over the River Interests. I don't wish to be understood to be opposed to the River Interests, but I say fair play all around. The city has allowed her interests to be wheedled out of her grasp too often, and I think it is about time they were awaking up to their interests, and not allow this great undertaking to be slaughtered by getting up this talk about obstructing river navigation, and I think I can propose a plan to cross the river on the present bridge, and at the same time to have this bridge of such a height as not to interfere with the river trade at all; and that is for the Company to come down the Marietta Railroad (or survey a new route from Loveland or thereabout) to a point to strike the old tunnel that has laid dormant so long, opening out in Deer Creek valley. If the Company could secure the right of way through that unfinished tunnel, coming out, as it does, in Deer Creek valley, above Court street, and then run down along Eggleston avenue to the bridge, the altitude from the present mouth of said tunnel would bring the approach to the bridge some seventy-five or one hundred feet above the high water mark, and the grade from the present mouth of the tunnel to the bridge, could be raised sufficiently to bring it still higher, and furthermore there could be bought enough ground at the intersection of Broadway and Hunt street, where there are now board yards, to build a large depot, both freight and passenger, with a hotel thrown in, and fill up the old ditch of a canal to the Brighton House, and lay a railroad track for the Cincinnati, Hamilton & Dayton Railroad,

and all other roads coming into the city from that direction, to come down to this Grand Central Depot, and thereby have communication with the great South and South-west over this bridge.

Respectfully, a plain citizen.
WALNUT HILLS.

The Railway Outlet from Celina Southward.

We learn from a private source that there is a clashing among the parties who for some time have been interesting themselves in finding a new line from a point at or near the south line of Mercer county into the Miami valley. Some are for the Covington route. Others for the more direct course from Versailles to Dayton, and others for the continuance of the old line through Darke county into Preble county to Eaton, and others again for the exploded idea of extending to Greenville, and thence over the Dayton & Union road to Dayton.

So long as there is such discord among the managers of this project, there is but little or no probability of even an efficient organization for such a work, much less any hope of its construction. It is very strange that the people of the country through which this road is contemplated have not yet learned that without a united effort, in the best of faith, and the most ardent support of the leading man in the undertaking, they are doomed to live in the mud and to see other less favored localities go far ahead of them, and the value of their possessions keep down to the frontier point, instead of rising to a civilized height. They are not without a vast experience in such matters, and one would think they had paid so dearly for such follies that they would now try the opposite course.

We are not in the new movement, nor do we intend to be, but we will suggest to these turbulent spirits the propriety of uniting upon a line from the south line of Mercer county to North Star in Darke county, thence to Versailles, Bradford Junction, Laura, Georgetown, Phillipsburg, Salem, to some point due south, on the Dayton & Richmond Railroad, thence on that road to Dayton.

What possible objection can there be to this route? It meets every demand, is practicable in alignment, grades, and cost of construction, and can be most handsomely supported by local interests; and what is equally desirable it keeps away from those old troubles that have throttled one grand scheme, and that will cripple if not hopelessly damn any other that comes within their reach.

—Some idea of the railway travel into and out of London may be had from the fact that the total number of trains entering and leaving the city in one day is fifty four per hour, or very nearly one per minute during the whole of the twenty-four hours of the day; and this immense business is conducted with a freedom from accident that is almost exemption.

Another Settler.**THE SPRINGFIELD SHORT LINE RAILROAD.**

The Springfield *Republican* of Saturday says:

The short line business has finally settled down in the following shape: The Cincinnati, Sandusky and Cleveland Company will perpetually lease its track from Springfield to Dayton to the Cincinnati and Springfield Railway Company. The track from Dayton down is not yet located.

The C. S. & C. Company will run its trains over the Short Line to Dayton and Cincinnati, but its shops and headquarters will probably be located here.

The Cleveland, Columbus, Cincinnati and Indianapolis Company will run its trains to Cincinnati by way of Delaware, Springfield and Dayton, over the Short Line, instead of by way of Columbus, as heretofore.

The Columbus, Springfield and Cincinnati road will be completed at an early day and trains will run to Cincinnati via London, Springfield and Dayton.

This result relieves Springfield of its \$10,000 subscription, and leaves our citizens in good condition for paying over the \$20,000 at the proper time to the Columbus road, and, also, for extending indentments for the location of the Niles Works here.

This we believe is the fourth time within this year that this "short line business has finally settled," and we suppose, of course, it will settle some other way within the next thirty days.

When this settling business commenced some persons had faith in it, and they kept it up pretty well through all the gerrymandering until the third grand settler, which had the effect to so settle public opinion upon the whole movement, that nothing short of an earthquake can arouse them to the least effort to aid, or faith in any railway scheme that may be concocted through the short line portion of the Miami valley.

A bold and square policy would have commanded an immense local interest. The people are anxious enough for a railroad to pay very liberally for it. They have learned that such improvements can not be made with big speeches, and bumcombe resolutions. And men of character, well known to the people, who would have placed their line on the best ground between the termini, and said to the people, we want the right of way, and so much land for depot purposes, and so much money to build the road *there*, would have got it, and the people would not have asked the question, nor cared, how much money these managing men made out of it.

But this fishing all over the country for nibbles, with bait of promises and pledges, false as "dicers' oaths," and for no other purpose than to be bought up, or to drive somebody to onerous terms, destroys confidence and—sooner or later recoils upon the parties who practice it and defeats all their plans.

We will watch and wait a little longer, and when we find that the right of way is se

cured, and at least a half a million dollars expended in grading the line, we shall begin to believe the thing is settled, and not until then; and we shall not be much disappointed if after all that, it fizzles out as it has done before.

A Good Appointment.

Mr. T. H. Hodder, better known throughout the State as Tom. Hodder, has recently been appointed by the Equitable Life Insurance Company their Agent for the State of Ohio, with headquarters in Cincinnati.

Mr. Hodder has been connected with the Ohio press for the past fifteen years, and brings to his new relations a most extensive acquaintance, a matured experience in Life Insurance, the tireless energy of a very active nature, and a determination to succeed that has not failed him hitherto and will not now.

We congratulate the Company in the possession of so good an agent, and the agent in his relations with so strong and well established an organization as the Equitable Life.

Erie Railway Company.

The enterprising managers of this Company did a smart thing for their road and a good thing for the public, when they appointed Mr. George Lamb their Custom House and Commercial Agent.

Mr. Lamb has had a large experience as Chief Clerk of the Warehouse Bureau in the New York Custom House, and can render in his new role the most efficient service.

Now, merchants can save time, money and trouble by authorizing Mr. Lamb to withdraw their goods on the export papers, and merchandise, either duty paid or in bond, destined for delivery at the interior ports of the United States or for export to Canada, will be passed through the Custom House free of all charges, except those required by law, such as stamps, etc.

Mr. Lamb's title is, "Custom House Agent, Erie Railway Co.," and he is to be found at the Warehouse Bureau, Custom House, or at 241 Broadway, New York.

RAILROAD GATES.—Mr. S. P. Baker, an English inventor, proposes to arrange by the side of the line of railway a treadle bar in such a position that a train in passing along the line shall depress the treadle, and in so doing act through suitable levers or instruments on a rod or wire passing to the gate, to be locked and unlocked where it gives motion to a leading plate or bolt, which in one position allows the gate to work freely, and in another locks it fast. A train then, in approaching the gate, comes on the treadle, and so moves the locking plate or bolt as to fasten the gate to prevent persons entering upon the line. When the train has passed the gate, it acts on a second treadle, which again moves the locking plate or bolt, and sets the gate free; or, by a simple arrangement, the gate may be unlocked after a short-measured interval of time after locking.—*Chicago R. R. Gazette.*

The New Erie Sleeping Coaches.

The conveniences of modern travel—how are they multiplying! Cars heated by hot water, lighted with gas, cushions of velvet, walls covered with oil paintings, carpets of the finest Brussels, curtains of tapestry, beds of curled hair, ceilings in fresco, windows of French plate glass, mirrors of the finest quality, seats of carved walnut, walls of splendidly polished hard woods, cornices fit for the finest library, hooks and handles and bars of plated silver! Such are the appointments of the new sleeping coaches built for the Erie Railroad, and which will leave here nightly, after this week, for New York. The first of these splendid coaches reached here night before last from New York, and returned last evening. They call them Drawing Room Palace Sleeping Coaches, and they are worthy of the name. They have the comfort of a bed chamber, the beauties of a parlor and the capacity of a drawing room. The seats are really luxurious, covered with a species of velvet called French moquette, of the most beautiful colors, and with medallion patterns in the center of each seat. The wood work is all black walnut, with panels of the same material made from the most beautiful veneers cut from the knots of this wood. The work is oiled and polished, so that it is as fine as the best furniture. Five fine globes from above surrounded by rich appointments furnish light by night. In the main room, after the beds are all put away and hidden from view, the traveler looks upon walls decorated with twenty oil paintings. In this coach is a parlor or family room, six by nine feet, capable of accommodating six persons. There is nothing apparently that could be added to this to make it more attractive or comfortable. For this a family or party pay fifteen dollars and go through to New York without change. There is still another stateroom in the rear that will accommodate four persons. A wash room at either end furnishes every possible convenience in this line. The bed-clothing is of the best, and the amplest arrangements have been made for clean linen.

The coach is warmed by Baker's patent hot water furnace, which is so constructed that, in the event of an accident, the fire will not be communicated to the surrounding wood. Fifty persons can be accommodated in each car.

The Erie & Atlantic Sleeping Coach Company have planted thirty-eight thousand dollars in this marvel of the car kind. Whether it will blossom into handsome returns would seem to admit of no doubt, when it is remembered that the charges on these are the same that are made in the more common coaches.

In honor of the commencement of the running of these palaces between here and New York, over the Erie road, Mr. Shattuc, invited a company of railroad gentlemen, and a few others, to ride out to Carthage and return, to give them an opportunity of seeing what they proposed to do, and to enjoy his hospitality.—*Gazette.*

A NEW ARTIFICIAL BUILDING-STONE.—Rev. H. Highton mixes four quarts of broken granite with one of hydraulic cement, adds water to form a paste, and leaves the mass for four days in moulds to set. It is then removed and kept for two days in a solution of silicate of soda, or water glass, which completes it. Experiences will be the proper test for this invention. Evidently the water glass will only act on the outside and harden that, while the interior will remain unchanged.

Repudiation of Railway Bonds in Minnesota.

Unless Minnesota is always to enjoy a practical guaranty against rebuke from the press for the repudiation of her state bonds issued to railroads twelve years ago, the present seems a fit moment to administer it by simple reference to our advertising columns, where side by side with Mississippi she takes her place before the world as an advertised repudiating debtor from which creditors are seeking justice by united action.

It is enough to say that Minnesota, unlike Mississippi, issued her bonds with the consent of her people in exchange for bank bills; or made sales of them in this city at public auction by the State officers to redeem the bills of broken banks.

The legislature of 1860, instead of keeping faith with the creditors of the State, proposed an amendment to the Constitution to the effect that the legislature should never in any manner provide for the payment of either interest or principal on these bonds without consent of the people. This amendment was adopted by the people, and no attempt has yet been made to redeem the credit of the State, unless the proposition to pay the bondholders in wild lands, in a "howling wilderness" at \$8.70 an acre, may be called one.

The projectors of new enterprises in Minnesota can not but expect to be confronted with these facts when they appear in the market as borrowers; and to be reminded of the just responsibility which attaches to them, if for want of effort on their part the stain of repudiation shall not be removed from a State that boasts of her wealth and progress, and claims to be the foremost commonwealth of the North west.—*N. Y. Post.*

RAILROAD CONSOLIDATION.—What is to be the final result of the process of railroad consolidation which has been going on in the United States for several years? It is not to be denied that the interests of the traveling public are best served, so far as comfort and speed are concerned, by the organization of great through lines; but it is questionable if that advantage is not more than counterbalanced by the disregard of local interests and rights which is sure to follow these combinations. When originally built, most of the railroads were short lines, and obtained valuable franchises in consideration of anticipated local advantages. In many cases the right of way was granted for much less than they were really worth; it was often donated outright by owners along the routes, upon the implied consideration that the roads would be a valuable means of local development, in which both the roads and the owners should perpetually participate. By consolidation, that contract is necessarily violated. It is urged that the requirements of the country are inexorable, and that great through lines are the creations of necessity, growing out of our rapidly expanding civilization; that they strengthen the body politic by bringing remote regions into more rapid, and consequently into closer communication, and that local interests must give way to larger exigencies. To a certain extent this is undoubtedly true; but we submit that it is a mistaken policy for railroad managers to ignore local interests and demands, and to reach out so eagerly as they do for through business. Experience has demonstrated that the latter is not nearly so profitable as the former, and besides, it is extremely bad policy for any road to alienate the friendship of the residents along its line.—*Pittsburg Chronicle.*

The Fast Train Folly.

Let a few unwelcome facts be reiterated, and a few plain words be again spoken about this unfortunate fast train business between Chicago and New York:

The result of it all thus far, so far as the roads are concerned, is that the immediate expense of wear and tear of equipment, and the loss in the long run from general and rapid deterioration of permanent way are greatly in excess of any substantial gain—immediate or remote, in reputation or patronage. We are able to say, authoritatively, that the expenses of the roads to keep their tracks in a condition of safety and efficiency (which it is the policy and practice of those that most earnestly protest against the fast running, to do) have been fully one hundred per cent. over ordinary renewal and repairs.

Not only this; under a system of operation by which two trains a day, must in order to be sure of making time at termini, be the object of constant solicitude and extraordinary efforts on the part of the officers, and of the employees along the entire line—other interests equally legitimate and of far greater importance in the long run are, and can not but be correspondingly neglected, or kept in abeyance. A train which, do the best it may, can only just make time, must have the right of way along the whole line. Everything else must yield to it and wait for it, if it is to serve its purposes. The almost daily consequence is complications, embarrassments, delays and losses in the ordinary operations and business of the road.

Now these facts are no more apparent to our Chicago managers to-day, than they were during the first weeks of an experiment which, however unwelcome, they felt themselves compelled to make. It is through no willing consent—much less from any suggestion of theirs—that the unfortunate business has been perpetuated. Time and again they have entered most earnest protest against it. Over and over they have endeavored to dissuade Eastern managers from the continuance of an unprofitable and a losing business—freight, too, it was felt, with gravest danger to human life.

We are glad to learn that, at last, a decisive position has been assumed. The managements of the North and South Shore lines, we are informed, have united in the declaration that they will no longer be parties to the arrangement. If it is still to continue, the responsibility of its conduct and its consequences must rest on the managements of their Eastern connections, who inaugurated it.

Curiously enough had our lines performed their part no better than has the New York Central, the whole thing would have proved futile long ago. In the case of the Michigan Central and Great Western, for example, they have failed, less than half as often as the New York Central to be on time at the bridge. The New York Central adopted it as a rule to wait there no longer than thirty minutes for the Michigan Central and Great Western trains, and its train has sometimes left, when that from the West was crossing the bridge. Time and time again, however, the Michigan Central and Great Western train, starting from the bridge from forty minutes to an hour behind them—has delivered the New York Central's passengers in Chicago on time. The same is, we presume, true of the South Shore line.

Our roads, however, propose to be a party to this arrangement no longer. Their managements are united in the opinion that no

train should—on consideration of economy and safety to itself, and of facility in the general business intrusted to them—make the run between Chicago and New York in less than thirty-six hours. We hope that they will, in this respect, "translate their principles into actions."—*Chicago Railway Review.*

The St. Louis Bridge.

The east pier was finished last February; the west pier is just completed; total heights, east pier 194 and west pier 165 feet; foundations hexagonal; substructure of limestone; above water of granite; weight 28,000 and 33,000 tons. Bridge, three spans of 500, 520 and 500 feet.

The possibility of erecting such long spans, considering the enormous weight they will have to bear, was at first doubted by the many practical engineers interested in the work. Captain Eads, however, sustained on the one side by his calculations, and on the other by example of the arched bridge at Kulinburg, in Holland, which crosses the Leek with a span of 500 feet, as well as by the plans of the English bridge engineer, Telford, which are made in the beginning of this century, was enabled to set aside the objections. The best cast steel is selected as the material of these arches. Each of them will be double—that is, consisting of two concentric arches, twelve feet apart—and joined together by a net work of massive steel braces. These double arches will be stretched parallel with each other, four in each span from pier to pier. Upon them will be laid the upper structure of the bridge, in two stories, the lower of which is exclusively for railroads, and the upper for vehicles and foot passengers. Being fifty feet wide, both will afford ample accommodation for all the traffic that will cross the bridge. The structure will present no obstruction to the free navigation of the river, as the largest steamers may pass under it without risk or difficulty—excepting, of course, such as may arise from the danger of collision with the piers during the season of floating ice.

The approaches to the bridge at either end are to be equally as substantial as the structure itself. The street leading to the bridge is one of the finest and broadest in the city, and like the whole of the St. Louis shore, it descends rapidly as it approaches the river. It will be sufficient, therefore, to prolong the bridge the comparatively short distance of 1,049 feet into the city in order to reach the level grade of the avenue by which it is approached. The vehicles crossing the upper roadway will pass directly into the streets of St. Louis, but the railroad trains will run into a tunnel 4,800 feet in length, which passes under the city, and terminates at a spot where the great depot of the St. Louis Central road will be built, and is now intersected by the Pacific Railroad. This tunnel is now fifteen feet wide and seventeen feet high, and will be cut through clay for most of the distance. With the approach to the bridge over the low, marshy ground on the Illinois shore the company has nothing to do, but dikes and trestles of substantial structure, branching off, according to the convenience of the different railroad companies, to North, South and East, will complete the connection. The upper carriage way will be carried out upon substantial constructions to a convenient point in East St. Louis.

The total cost of this work, 2,230 feet in length, can only be estimated as yet, but the

calculations of Eads, the constructing engineer, may be accepted as approximately accurate. His estimates are as follows:

Superstructure (piers and abutments).....	\$1,550,080 00
Superstructure (arches, roads & roads for traffic).....	1,460,418 30
Approaches.....	520,397 24
Tunnel.....	410,477 55
Expropriations.....	539,000 00
Railroad.....	25 680 00
Total.....	\$4,466,953 09

Of this amount \$3,000,000 have already been subscribed to the capital stock of the company, mostly by New York capitalists, and the pecuniary arrangement of the enterprise has been so successful hitherto that no difficulty need be anticipated in raising all the funds that may be necessary as the work progresses.

As we have before stated, this bridge, upon which St. Louis bases magnificent expectations of future greatness, is to be made of cast steel, and extensive experiments have been made to test the strength of the metal, which conclusively prove it to be the best material that could be employed for this purpose. The first structure of the kind ever built, it will take its place when completed among the greatest engineering triumphs of modern times. Although not so long as Victoria bridge over the St. Lawrence, which measures nearly two miles, nor the bridge over the Nebudda, in India, which is a mile and a half in length, nor the bridge from Bassein to the main land, which is over three miles long, its magnificent spans and stately piers will place it far above these bridges in character and structure. It will vitalize the commerce of the Mississippi Valley, uniting the three great lines of transit from San Francisco to New York, and from New Orleans to the Lakes. Thirteen railroads concentrate at its eastern terminus, and eleven radiate from its western; and many more will be built to accommodate the traffic of the North-west, which increases with rapid strides from year to year. Altogether, the Mississippi bridge is a magnificent material enterprise, and one of which the people of the West have good reason to be proud; but its usefulness will be national rather than local, and over these wide spanning arches of steel will roll the traffic of every section, saving millions each year in the expense of trans-continental transportation, and adding millions more to the material wealth of the country.—*Iron World.*

RAILWAY SIGNALS.—The following are railway signals: One whistle signifies "Down brakes," Two whistles, "Off brakes." Three whistles, "Back up." Continuous whistles, "Danger." A rapid succession of short whistles is the "Cattle Alarm." A sweeping parting of hands on level of the eyes is a signal to "Go ahead." A downward motion of the hand, with extended arms, signifies "Stop." A beckoning motion of one hand means "Back." At night, when a lantern is raised and lowered vertically, it is a signal for "Starting;" when swung at right angles or across the track, "Stop;" swung in a circle, "Back the train." A red flag waved upon the track indicates "Danger;" hoisted at a station, it is a signal for a train to "Stop;" stuck up by the roadside, it is a signal of danger on the train ahead; carried unfurled upon a locomotive, it signifies "Engine following," and gives warning that another (special) engine or train will soon come along on the same track.

Railways into New York.

The census returns from the New Jersey suburbs present an emphatic proof of the increasing business of N. Y., whose surplus population is overflowing rapidly in that direction, but nothing more clearly shows the immense increase in the general business of the country than the history of the railroad traffic in N. J. for the decade just past.

It is scarcely ten years since all the roads leading through N. J. to N. Y. harbor from the West converged at Bergen Hill and from that point to Jersey City were dependent on the N. J. Transp. Co. That single road was adequate to the entire railroad business from the West through N. J. to N. Y.

The Erie, the Northern, the Mor. and Essex and the Central were all tributaries to the N. J. road, and their combined traffic eleven years ago did not exceed that of the single N. J. road at the present time. During the decade the Erie has established a terminus and ferry of its own; the M. and E. has reclaimed and utilized a vast tract of water front, and adopted the Hoboken Ferry; the Central has filled in a former waste and established the most commodious ferry in this or any other country; and now within ten years we see what was a single avenue of traffic enlarged to four each equal in the volume of its business to all the roads when formerly combined in one.

If we compare the respective time tables, we learn that the number of trains on each road is about the same as on the combined roads in 1860; so that we have demonstrated the astounding fact that the railway business across and through N. J. has increased four hundred per cent. in ten years. Much of this increase is due to the migration of N. Y. families, who find all that is requisite within an hour's ride.

The rush from the city was never so great as during the present season, and it suggests the inquiry whether the facilities for transportation are increasing in a corresponding degree.

The Midland Road is fast approaching completion. It extends through N. J. between the Erie and the M. and E. roads—N. Y. Post.

AN IRON RAILWAY TIE—A citizen of Michigan has invented an iron railway tie which he thinks will prove a practical substitute for wooden ties. If such shall prove to be the case, very important results will follow.—Wooden ties cost about seventy cents each, but require to be replaced every three or four years. The iron tie costs three dollars, and once down is down forever, as it is protected from corrosion by coal tar. The main feature of the invention, however, is the lock. One flange is cast on the tie. The other is of wrought iron, and is held in place by a three eighths wrought iron quarter-round key. The rail rests upon a rubber cushion four inches square and five inches in length. This rubber cushion is protected from the action of the elements by a one-eighth inch iron cap, made to fit over it closely. It is claimed that this rubber cushion will prevent the beating down of the end of the rails; will, by obviating concussion, save rolling stock, and that the train will glide smoothly, instead of thundering along.

Massachusetts has 128 cotton mills, with 52,149 looms, and 2,304,818 spindles. Of cotton spun there are 114,909,627 yards.

National Finances.

The official statement of the receipts and expenses for the first quarter of the current fiscal year ending September 30, has been published as follows:

INCOME.	
Customs.....	\$57,729,473 57
Internal Revenue.....	49,147,137 92
Sale of Public Lands.....	812,437 67
Miscellaneous sources.....	7,382,181 59
Total.....	\$115,101,230 73
Balance in Treasury June 30, 1870.....	149,502,471 60
Unavailable charged to Treasurer.....	616 79
Grand Total.....	\$264,604,219 14
EXPENSES.	
Civil and Miscellaneous.....	\$18,207,242 49
War Department.....	10,214,538 36
Navy Department.....	4,815,237 58
Indians and Pensions.....	14,825,451 89
Interest on Public Debt.....	39,496,450 51
Total.....	\$86,562,920 83
Redemption of Loans and Treasury Notes.....	38,937,051 40
Purchase of Bonds for Sinking Fund, &c.....	6,010,000 00
Total net expenditures.....	\$131,500,023 83
Balance in the Treasury Sept. 30, 1870.....	133,103,493 31
Total.....	\$264,603,529 14

The surplus receipts over expenses for the first quarter of the present fiscal year, exclusive of \$3,000,000 interest paid on the Sinking Fund, amounts to \$32,138,310, showing a net gain of \$10,000,000 as compared with the corresponding period last year. The customs receipts during the last quarter were the largest ever before known in the same period, and are considerably in excess of the official estimates of the Treasury Department. The following table shows the sources of Internal Revenue for the quarter ending September 30, 1870, as compared with the corresponding period in 1869:

INTERNAL REVENUE RECEIPTS.

Receipts first three months of fiscal year.

Sources of Revenue.		1870.	1871.	Increase.	Decrease.
Total.....		\$16,729,493 79	\$19,519,223 97	\$2,789,730 18	\$0 00
Alcohol.....		3,655,678 19	3,611,882 16	43,796 03	0 00
Tobacco.....		8,121,791 21	8,107,019 45	14,771 76	0 00
Lotteries.....		3,254,708 36	3,247,989 41	6,718 95	0 00
Excises.....		3,211,243 49	3,181,919 11	29,324 38	0 00
Arbitrages in School, A.....		319,092 31	319,609 35	517 04	0 00
Gas.....		2,583 00	2,960 00	377 00	0 00
Postage.....		4,059 17	468,278 32	464,219 15	0 00
Source not elsewhere enumerated.....		119,151 56	41,944 89	77,206 67	0 00
Pensions.....		159,021 73	514,661 87	355,640 14	0 00
Net profits from stamps.....		3,655,678 19	3,611,882 16	43,796 03	0 00

It will be seen that during the last quarter the very large sum of \$38,937,805 was expended in the redemption and purchase of Treasury notes and bonds. The total expenditures for this purpose, up to the commencement of the present month, amount to \$183,768,903. The following table shows the changes in the debt, caused by the bond purchases:

Funded Debt, November 1, 1870.....	\$1,950,670 00
Funded Debt, March 31, 1869.....	2,107,845,150
Reduction of Funded Debt.....	\$157,175,950
Yearly Gold interest charge, March 4, 1869, amounted to.....	\$124,234,879
Present yearly charge.....	114,849,139
Reduction of Interest charge.....	\$9,385,740

Circulation, &c. (less Cash in Treasury).	\$47,617,109
March 4, 1869.....	391,014,136
Circulation, &c., November 1, 1870.....	\$26,502,953
Reduction Unfunded Debt.....	\$183,778,903
Total reduction Public Debt.....	\$183,778,903

The whole policy of these bond purchases will probably be thoroughly considered at an early period of the next session of Congress. In the meantime it may be stated that the more the Government buys of their bonds, the less are they in request by the people. It is perfectly well known that for some months past their sellers have been in excess of their buyers. This is proved by the very large amounts constantly offering to the Sub-Treasurer at the weekly bids. The Government bond market is sustained almost exclusively by the foreign demand. This feature of the market is worthy of attentive consideration, and we reserve it for further discussion at another time.

We close our statement of the condition of the national finances with the following table of the total net receipts and expenditures of the United States Government from its organization, March 4, 1789, to June 30, 1870:

RECEIPTS.

Customs.....	\$2,774,990,382 66
Internal Revenue.....	1,485,722,307 70
Direct Tax.....	26 69
Public Lands.....	189,321,855 40
Miscellaneous.....	193,373,498 58
Dividends.....	9,720 1 29
Premiums.....	159,113,900 34
Interest.....	485,621 43
Total net receipts.....	\$4,847,394,642 47
Add gross amounts received from loans and Treasury notes.....	6,825,772,517 91
Total.....	\$11,673,167,160 33

EXPENDITURES.

Army.....	\$3,926,848,822 61
Navy.....	816,220 310 16
Indians.....	122,616,573 33
Pensions.....	221,153,156 32
Miscellaneous.....	838,154,098 33
Premiums.....	43,095,739 63
Interest.....	1,048,827,786 17
Total net ordinary expenditures.....	\$7,634,058,326 55
Add gross expenditures for redemption of loans and Treasury notes.....	4,457,930,769 86
Total.....	\$11,492,887,196 41
Apparent balance with the Treasurer, June 30, 1870.....	180,277,863 97

From this apparent balance must be deducted the following unavailable items in the hands of the depositories credited:

Treasurer.....	\$1,673,847 46
Deposited with the States.....	23,016,644 91
Total.....	\$30,775,492 37
Leaving the actual net available balance in the Treasury, June 30, 1870.....	\$149,502,471 60

— An ingenious railway lamp, as we learn from the New York journals, has been invented in France. It is so constructed that passengers can use it as an alarm signal in the different compartments of the train. It has three signals, one consisting of a brilliant glare of light, and will come in use when danger approaches in a dark night; another is a small flag which also indicates danger; and the third is a ringing apparatus of great power, extending the length of the train to the guard room, and indicating the exact compartment whence the alarm proceeds. In all cases, the alarm signal is given by touching a spring knob connecting with the lamp and easy of access.

The capital invested in nine steel manufacturing establishments in Pennsylvania amounts to \$1,500,000. The annual products amount to 18,500 tons.

Railroad Business of Denver.

It is about a year since the first mile of track was laid in Colorado, and scarcely four months since the first road was opened to Denver. The D. P. was opened June 24th; the K. P. August 15th, and the Col. Cen. September 24th. Of these roads the following portions are in Colorado:

D. P.—Territorial Line to Denver, 91 miles
K. P.—Pond Creek to Denver.....215 "
Col Central—Goldeu to Denver..... 17 "

Total.....323 "

The Boulder Valley

will open its first section, of 14 miles in December, making 337 miles for the first year. The road from Kit Carson to Denver, 150 miles, was laid in 100 days; and the C. C., 17 miles, in 45 days. We have the only Territorial railroad in the country. The

Business of Denver

since the opening of the road has been:

AUGUST (15 DAYS.)

Pounds of freight received..... 373,601
" " forwarded..... 37,442
Cash \$7,015.56

SEPTEMBER.

Pounds of freight received..... 1,669,362
" " forwarded 820,501
Cash \$56,671.80

OCTOBER (TO 22D INCLUSIVE)

Pounds of freight received..... 2,300,000
" " forwarded 780,000
Cash \$42,730

The number car loads of freight received during October, was on the first week, 27; second, 49; third, 60; fourth, 76—53 per week—principally merchandise, about equally divided between St. Louis and Chicago, with occasional loads through from New York, Boston and Philadelphia. Chicago freights coming over this road are principally by way of Quincy and Kansas City, but several through cars from that city, via St. Louis, have been received; rather a hint to the latter city that they can go 280 miles further round, and still hold nine tenths of the Denver trade. The freights from St. Louis are principally groceries and hardware. Leavenworth and Kansas City are getting up something of a trade. Leavenworth is furnishing flour, and Lawrence has been shipping heavily in sweet potatoes. Our

Shipments East

are stock, hides and wool—40 car loads per month. The stock goes to Chicago and St. Louis; the hides and wool through to Boston. About 50 car loads of cattle have been shipped from Denver, Deer Tail and Hugo, since the middle of September. The local ticket sales for September were \$2,600. These for October were considerably more.

The receipts of freight in Denver now average 350 car loads a month. The K. P. is supplied with coal at this point from the Carbon mines on the U. P., twenty car loads per week. The Godfrey mines, fifty miles east of here on the K. P., will by spring supply twenty-five car loads per week to the western division.

Eight regular passenger trains arrive and depart every day, and four freight trains.

Oil of sassafras, it has been discovered, will entirely neutralize the narcotic effects of tobacco, and it is believed will prove an excellent remedy against the bite of rattlesnakes. Oil of sassafras, it is stated, has long been used to prevent the fermentation of maulage and inks.

The following information is worth heeding: A lady of Portland, (Oregon,) says that for nine years she has been burning coal oil without ever having an accident. She places a small quantity of coarse salt in the bottom of her lamps, and not only by this means is the oil purified and the light made brighter, but on two different occasions ignited oil lamps have overturned in her house through accident or carelessness of servants, and yet there has never been an explosion. The plan is a simple one and well worth trying; for even if it does not prevent accident, it will improve the quality of the light. The salt should be changed every three months.

There was manufactured in Washington county, Ohio, in 1869, 72,474 gallons of sorghum sirup—over 1,800 barrels of forty gallons each.

RAILROAD GAZETTE.**The Railroad Man's Paper.**

Illustrated Weekly Quarto Journal, 24 Pages. **R. R.** News & Operation, Engineering, Reports, Management, Advertising.

A. N. KELLOGG, Publisher.
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Will be Four Dollars after January 1, 1871.

THE FIRM OF WM. J. YOUNG & CO.

Mathematical Instrument Makers, consisting of Wm. J. Young and Chas. S. Heller, was dissolved shortly before the death of Wm. J. Young. The undersigned, the late partner of said firm (who was with Mr. Young continuously for Fifteen Years, will continue in the same line of business, at No. 33 North Seventh street, Cor. of Elbert.

CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870. 29-9-70, 27

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GET THE BEST. I had to add my testimony in its favor. Prest. Walker of Harvard.] very scholar knows its value. W. H. Prescott, the Historian.] the most complete Dictionary of the Language. [Dr. Dick, of Scotland.] the best guide of students of our language. [John G. Whittier.] he will transmit his name to latest posterity. [Chancellor Kent.] etymological parts surpasses anything by earlier laborers. [George Bancroft.] bearing relation to Language Principia does to Philosophy. [Elihu Burritt.] xceeds all others in defining scientific terms. [President Hitchcock.] so far as I know, best defining Dictionary. [Horace Mann.] take it altogether, the surpassing work. [Smart, the English Orthoepist.]

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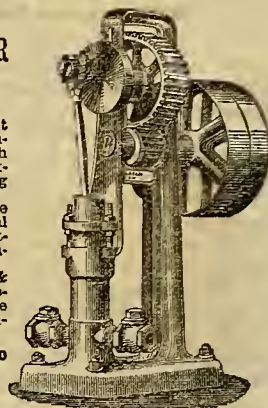
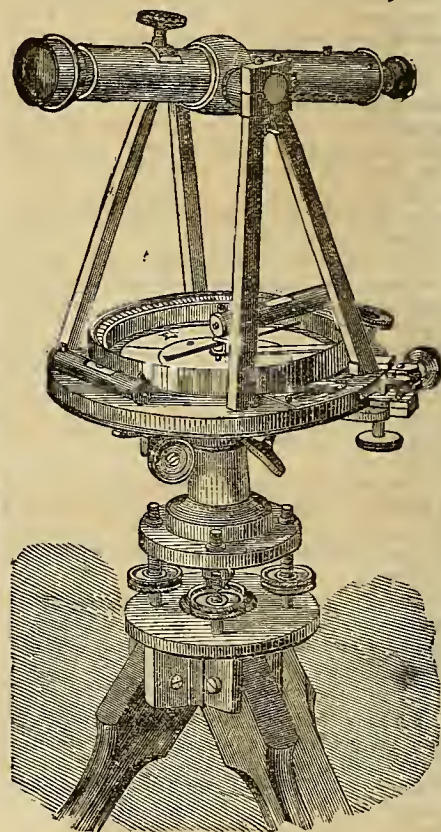
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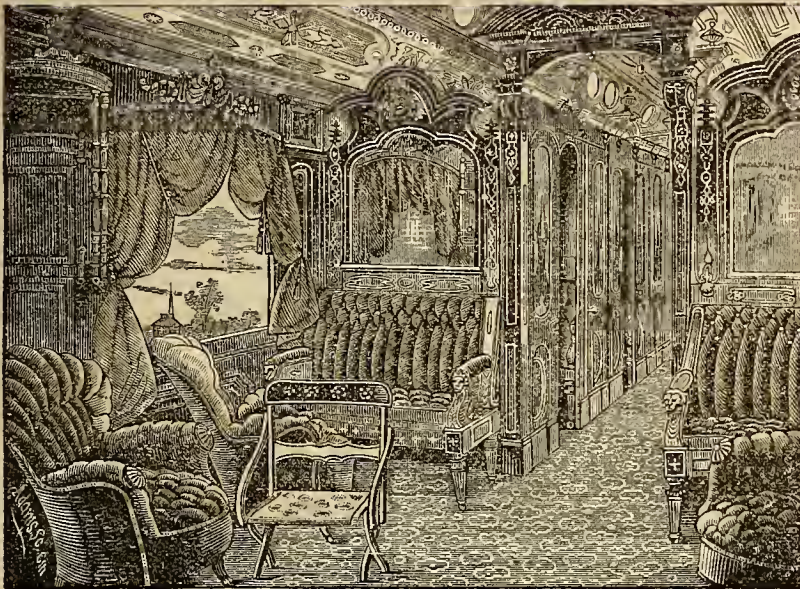
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AND

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59 Miles in Distance Saved

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WITH THE PRIVILEGE OF GOING TO

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JANUARY 1st, 1870.

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TRAINS RUN AS FOLLOWS

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Mail..... 7:15 A. M. 10:55 P. M.

Osgood Accommodation..... 3:10 P. M. 8:45 A. M.

Through Western Express..... 5:10 P. M. 8:30 P. M.

Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Office, 134 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

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Leave CINCINNATI from DEPOT, corner Fifth

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which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A.

M.; Urbana, 10.29 A. M.; Gallion, 12.57 P. M.;

Mansfield, 1.40 P. M.; West Salem, 2.50 P.

M. (Dine). (Sleeping Coaches through to

New York); Akron, 4.26 P. M.; Ravenna,

5.10 P. M.; Meadville, 8.00 P. M. (Supper);

Susquehanna, 7.55 A. M. (Breakfast); Turner's,

1.40 P. M. (Dine); New York, 3.00 P.

M. Connects at Ravenna with Cleveland &

Pittsburg Railroad for Hudson and Cleve-

land; at Elmira for Williamsport and the

South; at Binghamton for Cooperstown,

Albany and the celebrated summer resort,

Sharon Springs, and at New York with

afternoon trains and steamers for Boston and

New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana,

1.25 A. M.; Gallion, 3.58 A. M.; Mansfield,

4.44 A. M.; West Salem, 5.59 A. M. (Bkfst);

Akron, 7.38 A. M.; Ravenna, 8.25 A. M.;

Meadville, 11.20 A. M. (Dine); Hornellsville,

6.19 P. M. (Supper); New York, 7.00

A. M. Connects at Mansfield with Pittsburg,

Ft. Wayne & Chicago Railway for Pittsburg,

Harrisburg, Philadelphia, &c.; at Meadville

with Franklin Branch for Oil City; at

Elmira with Northern Central Railway for

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New and Improved Coaches of the style peculiar to the

Broad Gauge, arranged for both Day and Night Travel,

are attached to this train at Cincinnati and run through to

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The Erie Railway Company has opened a new

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The scenery along the entire route of the Erie

Railway is of the most picturesque and beautiful character.

Admirers of Nature's beauties, in a daylight journey over

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jects of continual admiration and interest.

Baggage Checked Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

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cinnati, 80 West Fourth Street. 115 Vine St., 4 Burnet

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Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

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And all Rail and River Towns and Cities in the West,

North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

Indianapolis and Lafayette Mail.... 7.20 am 12.40 am

St. Louis and Springfield Express.... 2.40 pm 7.35 am

*St. Louis and Springfield Express. 10.20 pm 3.42 pm

Lawrenceburg Accommodation..... 10.10 am 2.35 pm

Lawrenceburg Accommodation..... 4.20 pm 8.25 am

*The 10.20 pm. train will leave Sundays, but not on Sat-

urdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail..... 7.00 am 10.15 am

Chicago Express..... 6.50 pm 9.30 pm

Harrison Accommodation..... 5.30 pm 7.10 am

Through Tickets can be obtained at the Burnet House

Office, corner of Third and Vine; River Office, corner of

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of the city than the Depot of any other railroad, and with-

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J. F. RICHARDSON, Superintendent.

F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

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Eastern Express (Erie Railway). 7.40 A. M. 6.30 P. M.

do do do .. 9.45 P. M. 7.00 A. M.

Toledo, Detroit & Canada..... 7.15 A. M. 10.25 P. M.

do do do 6.30 P. M. 7.00 A. M.

Lima Fort Wayne & Chicago..... 7.15 A. M. 10.25 P. M.

do do do 2.30 P. M. 5.40 P. M.

do do do 6.30 P. M. 7.30 A. M.

Sandusky, Cleveland & Buffalo..... 7.15 A. M. 5.40 P. M.

Springfield Accommodation..... 2.30 P. M. 10.20 A. M.

Sandusky, Cleveland & Buffalo..... 6.30 P. M. 10.20 A. M.

Muncie & Indianapolis..... 7.15 A. M. 10.25 P. M.

do do do 5.40 P. M. 1.20 P. M.

Hamilton, Eaton & Richmond..... 7.15 A. M. 10.25 P. M.

do do do 5.30 P. M. 10.20 A. M.

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Trains run SEVEN MINUTES FASTER than Cin-

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For all information and through tickets, please apply at

the old office, south-east corner of Broadway and Front; Burn-

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respective depots. East Front and West Sixth streets.

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For Rates, Bills of Lading, or any information desired,

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W. P. SHINN, General Freight Agent,

Pittsburg, Pa.

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A.

M. Daily (except Sundays). Stops regularly

at Walton, Elliston, Sparta, Liberty, Worthville, Camp-

bellsburg, Lagrange, Pewee Valley, Anchorage; when

flagged, at South Covington, Maurice, Independence, Bank

Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur,

Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves

Cincinnati at 1.20 P. M. Daily (except

Sundays). Stops only at Walton, Worthville, and La-

grange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M.

Daily (except Sundays). Stops regularly

at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville,

Campbellsburg, Sulphur, Lagrange, Pewee Valley, Anchor-

age, and when flagged, at South Covington, Maurice, In-

dependence, Bank Lick, Verona, Zion, Eagle, Carrollton,

Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cin-

cinnati at 11.15 P. M. Daily (except

Saturdays). Stops regularly at Worthville, Lagrange, and

when flagged, at Walton, Verona, Elliston, Glencoe, Sparta,

Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee

Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington

Trains, arriving at Frankfort at 6.14 P. M., Lexington

7.45 P. M. QUICK TIME.

The Best Route to the South. More Daily Trains

and Quicker Time than any Line from Cincinnati.

-HENRY STEFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Lib-

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ware, Lackawanna, and Western Railroad, and at Easton

with the Lehigh Valley Railroad, and its connections,

forming a direct line to Pittsburg and the West, without

change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago,

Cincinnati, St. Louis, etc., with but one change of cars.

Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as

follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk,

Williamsport, Wilkesbarre, Mahoney City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg,

Water Gap, Scranton, Kingston, Pittsburg, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch

Chunk, Wilkesbarre, Reading, Columbia, Lancaster,

Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk

and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the princi-

pal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and

Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without

change of cars to Cincinnati or Chicago, and but one

change to St. Louis. Connects at Harrisburg for Erie and

the Oil Regions. Connects at Junction for Stroudsburg,

Water Gap, Scranton, &c. Connects at Phillipsburg for

Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Satur-

days) for Easton, Bethlehem, Allentown, Reading, Harris-

burg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars

to Pittsburg and Chicago. Connects at Junction with

Delaware, Lackawanna and Western Railroad for all sta-

tions to Scranton. This train will be run to Easton on

</

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
A. J. HODDER, - - - - }

CINCINNATI, THURSDAY, DECEMBER, 15, 1870.

The Railroad Record,

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Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'r's.

Ohio Mines and their Development in Regard to Cincinnati.

A short time since we spoke of the immense development of coal in Sunday Creek Valley, and of the commencement of the Atlantic & Lake Erie Railroad. At that time the public mind scarcely believed that such vast deposits of the most valuable coal and iron were within easy reach of Cincinnati, and yet apparently unknown; nay, even professed geologists doubted the existence of such mines and of such wealth in the little insignificant valley of Sunday Creek. We could afford to let the matter stand till time should make its own demonstration. It has already been done, and both the public and geologists now acknowledge these wonderful deposits. There is in our mind no doubt whatever that the valley of Sunday Creek affords in a comparatively narrow space the richest mines of coal and iron in Ohio, or probably in the valley of the Ohio. Since we wrote our article the Sunday Creek coal has been tried in the shops and foundries of Cincinnati and pronounced of the same quality of the famous Briar Hill, and for some purposes superior to any coal. So also the iron is deemed by practical forgers to rank among the best, and companies have been formed to work it. In fact, if coal and iron are worth anything, Sunday Creek valley affords the best opportunity for developing them which can be found in our country. Here the question arises, *how* are they to be developed? and how can this wealth be made available to Cincinnati? Some one says, "Oh, there is coal all about us, and we can get as much as

we want." Exactly, but do you get it of the best kind and to the best advantage? Cincinnati has recently presented a singular spectacle of this kind, and one at which we have been greatly surprised. In the discussion of the "bridge question," in which the chamber of commerce seemed to consider the interests of places hundreds of miles away more than those of Cincinnati, it appeared to be the main argument that the bridge to Newport would obstruct coal boats! The absurdity of this sort of argument here is obvious from two considerations: 1. That if Pittsburg coal never existed, Ohio has near the river inexhaustible quantities of the best coal. There is no necessity for getting Pittsburg coal at all. On the contrary, there is better coal than that of Pittsburg here. Pittsburg coal is not equal to that of Sunday creek for some purposes. 2. That if the coal were landed at the foot of Butler street, it would be just as accessible to the people of Cincinnati as at any other point. The people of Cincinnati are not particularly interested in the commerce of Pittsburg; but they are interested in developing the coal of Ohio, especially such coal as that of Briar Hill and Sunday creek; and we ask again, how can this vast deposit of wealth be developed and sent out to the country? It certainly won't be by expending breath and strength by opposing bridges over the Ohio, nor will it be by helping the interests of Pittsburg more than those of Cincinnati, nor will it be by folding our arms while railroads to Toledo and Columbus are made, and the trade of the interior diverted from us. However, it will be well to have the Sunday creek mines developed in any way, and if the Toledo road will do it, Cincinnati may take advantage of it, as we will presently see. We have mentioned that the Atlantic & Lake Erie Railroad was already put under contract for the southern line of Perry county to Bucyrus, passing through New Lexington, Granville, Bucyrus, and thence to Toledo. In Perry county it lies in the valley of Sunday creek, and if no other part is made than from New Lexington to the Ohio, that alone would fully develop the mines, and be of inestimable value to Cincinnati. Cincinnati has, therefore, a great interest in that matter, although we daresay scarcely any of its business men may see it. We will endeavor to show how. It is something like forty miles from these mines to the Ohio river, on a descending grade. At first sight it might be thought that there would be a second handling of coal to transport it on the Ohio. Not so; and there need be no additional cost, because with proper iron dumping cars, and inclined plane to the river, the coal will be dumped into the coal boats almost without labor. The cost of transporting coal from Sunday creek to Cincinnati need not be a cent more than that from Wheeling and Pittsburg. The point gained is that there is no such coal now on the Ohio as that at Sun-

day creek, if the opinion of geologists be worth anything. Besides, the trial of this coal at Cincinnati proved that fact. We shall have, then, a coal competing successfully with that of Pittsburg. Further, if the opinion of iron masters is worth anything, the iron of Sunday Creek is both of excellent quality, immense in quantity, and very convenient. If this be the case, and the best coal in the world to smelt it on the spot, it *follows inevitably that iron can be made cheaper there* than in any other locality, and in fact no eastern or foreign iron can compete with it at all. It is said that iron can be made there at \$15.00 per ton. The experiment has not been made, but at gold prices we have no doubt it can be made at that price and sold in Cincinnati at a good profit for \$20.00 per ton. Here, then, are two great advantages to be derived to Cincinnati for the opening of Sunday creek mines. But when will they be opened? We know not. We see that mining companies have been formed for this purpose, and that the Atlantic & Erie Railroad is under contract. But we also know that it is difficult to raise capital for such great enterprises from local interests. The country is not rich enough to spare much capital. For this reason the great commercial centres must be looked to for capital, and they ought to understand that it is by *developing the resources of the country* only that cities can grow. But this great truth is not always understood. When Cincinnati was small she understood it better than she understands it to-day. What is the consequence? To-day she is sluggish, growing at a slow rate, and putting forth no great energies. Shall she remain so? Can nothing be done to extend the views and engage the power of this great city? Must every man look upon his own things, and nothing upon that of others? If we pursue that policy we shall dry up.

The best example of what a city should and can do to create power and wealth for itself is that of Philadelphia. That city has comparatively no foreign commerce, and if it had done no more to develop its interests than New York has, it would be a comparatively small place. But, in fact, it has kept close on the heels of New York. Why? Because Philadelphia, just like Cincinnati, had from 80 to 150 miles away immense mines of coal and iron. There was the anthracite; there was iron of all qualities. What did Philadelphia? She put forth her whole energy and all available capital to develop that mineral region, and more than half the population is due to that cause. Philadelphia, with no foreign commerce, has 600,000 inhabitants. She has built railroads, canals, opened mines, made furnaces, forges, docks and vessels all to get this coal and iron, and to make others tributary to Philadelphia and Pennsylvania! It has been done; all the Atlantic coast pays tribute to her. Cincinnati has precisely the

same advantages, but in what way has she availed herself of them? She has helped but very little to build the railroads about her, and what mines has she helped to open?

Kansas Pacific Railroad.

EXPERIMENTAL PLANTATION ON THE PLAINS—
REPORT OF R. S. ELLIOTT, INDUSTRIAL AGENT.

The following report was recently submitted to the Board of Directors of the Kansas Pacific Railroad Company:

KANSAS PACIFIC RAILWAY, IND. DEP'T. }
BROOKVILLE, Kansas, Nov. 30, 1870. }

Hon. JOHN D. PERRY, President Kansas Pacific Railway:

SIR—I have the honor to report to the President and Directors of the company, that experimental plantations have been commenced on the line of the road, viz: 1st, At Wilson, 239 miles west of the state line of Missouri, and 1,586 feet above the level of the sea. 2d. At Ellis, 302 miles west of State Line, and 2,017 feet above the level of the sea. 3d. At Pond Creek, 422 west of State Line, and 3,175 feet above the sea.

The elevations are of the railway track; they are not barometrical, but from railroad surveys connecting your road with lines lead to tide water. The longitude is: Wilson's about 98 deg. 30 min. west from Greenwich; Ellis nearly 100 deg., and Pond Creek nearly 102 deg. All of the plantations are west of the limit heretofore assumed by most meteorologists as the limit of cultivation except by the aid of irrigation.

Only a few acres of ground were broken at each place. It was so late in the season when the work was begun, that it was impracticable to break large areas without disproportionment expense. Nor was there time to give more than one plowing, and after a slight harrowing the seeds were sown. The ground not having been deeply plowed nor put in first-rate condition, and the seed having been cast on the raw soil of the plains, with no interval allowed for the rotting of the sod, the experiments have no conditions which may not be equaled by the ordinary farmer. By their success they will show that the immigrant may turn over the buffalo grass at any time during the autumn, and secure for himself a harvest of cereals next summer. It would have been more pleasant to me to have had the work done more thoroughly, but as it is, the immigrant will not doubt his ability to do as well, and need not be afraid to try.

SEEDS SOWN,

At Pond Creek, 28th September, 1870: Wheat, 4 acres; rye, 3 acres; barley, 2 acres; timothy sown on the wheat. On 14th of November, Lucerne was sown across the wheat, rye and barley. At Ellis, 20th October: Wheat, 3 acres; rye, 3 acres; barley, 1 acre. On 22d October three quarts white Tonzelle wheat and three quarts Scotch rye, both imported and furnished by the department of agriculture, United States. On 24th October seeds from same department were sown as follows: Italian rye grass, perennial rye grass, Lucerne, Northern Lucerne, Province Lucerne, Alaska clover, Sairofoin Saradella, Vitches, Vetchlings. At Wilson, 11th November: Wheat, 2 acres; rye, 2 acres; barley, 1 acre; also, timothy and Lucerne. On 12th November, Northern and Province Lucerne from the department of agriculture.

Also on the 12th of November a few nuts and seeds of trees were planted at Wilson, burr oak, pecan, chesnut, peach and ailanthus. If not destroyed by rats and ground mice, these nuts and seeds will no doubt germinate early in the season. To avoid destruction by small animals it may be necessary to plant acorns, walnuts, &c., only in the early spring, or to plant young trees. I am in correspondence with nursery men to learn where the best and cheapest forest trees can be had.

PROSPECTS OF SUCCESS.

On the 19th of October, three weeks from sowing, I found the grains of Pond Creek up and looking well. On the 14th of November the wheat, rye and barley at Ellis gave a green tinge to the ground as seen from the car windows, and Lucerne was forming its third leaf.

I learn to-day that the grains at "Wilson" sown 19 days ago, are up so as to be seen from the passing trains.

The experiments at Wilson are under the disadvantage of very late planting—the 11th of November for wheat, etc., yet such is the fertility of the soil and its peculiar fitness to produce the cereals, that a crop is as certain as any future event in agricultural operations can be.

The experiments at Ellis, like those at Wilsons, give such promise that observers regard success as a matter of course. These points are east of Grinnell and Carlyle, at both of which places wheat sown in April matured in July during the past summer. Yet to grow the winter grains without irrigation only as far west as Wilson and Ellis, establishes the practicability of diversified agriculture for half the distance from State Line to the settlements of Colorado.

The experiment without irrigation at Pond Creek, 120 miles beyond Ellis, and on the extreme western border of the State of Kansas, in the very midst of the plains, and in a soil to be classed with the least promising on the line of your road, is the most interesting and important. The location is near the 102 degree of west longitude, 4 degrees west of the limit of arable effort depending on rain fall alone, as heretofore assigned by eminent meteorologists. Boldly, but not unwisely, you have invaded the "desert," not only with the iron rail, but the plow and harrow as well, and success under circumstances heretofore believed to forbid it, will prove the wisdom of your order to me to make the trial, and it will also establish a new value for millions of acres of lands heretofore regarded as worthless except for limited grazing resources in favored portions.

Even with the first trial I have no doubt of success. A second trial with better culture and a decomposed sod, will yield larger results, but will not more favorably illustrate the favorable climatic conditions and the strength of the soil.

FREE GROWTH ON THE PLAINS.

To detail all the conditions to be observed in establishing forests on the plains, would require an essay. I can only in brief remark:

1. Forests can be established in all parts of the plains, even without artificial irrigation.
2. Much deeper plowing will be required than for winter grains or forage plants.
3. The most rapid growers are the best trees for first planting.
4. Planting seeds is better than to transplant young trees.

The future history of the vast region be-

tween middle Kansas and the mountain will sustain these propositions. Seeding trees at Bunker Hill station, 252 miles from State Line, and 1,800 feet above the sea, and transplanted trees at Kit Carson attest the practicability of tree belts as snow shields at the cuts along the track; but a separate report is required to do justice to this subject.

Very respectfully, &c.

R. S. ELLIOTT,
Industrial Agent Kansas Pacific Railway.

Pennsylvania Central R. R.

The managers of the grand trunk route through the Keystone State seem to be leading off in several entirely new enterprises, which, if successful, (and there is no doubt upon that point,) will almost revolutionize the railway system of the country. President Thomson and Col. Scott, and in fact all the rest of them are live men, of pluck and experience, with all the capital and political influence they need ask for to accomplish anything which they may attempt, and if Vanderbilt, Fisk, Garrett and all other rival kings do not stir themselves briskly they will soon see the Penn. Central getting ahead of them. Among other news items in reference to the enterprising Keystone-liners we find the following in a New York paper:—

"RESTORING AMERICAN COMMERCE—The Philadelphians are going to work the right way to restore their decaying commerce. Instead of asking subsidies of Congress the business men of the Quaker City have determined to build on the Delaware four iron screw steamers for the Liverpool trade. The bonds for the building of the vessels will be guaranteed by the Pennsylvania Railway Company."

And there is another newspaper report which says:—

"The Pennsylvania Railway Company have reported in favor of placing a line of steamships between Philadelphia and Europe, that the vessels shall be *home made*. The Company further agree to organize a company and guarantee the endorsement of its bonds to the amount of \$1,500,000, at six per cent. currency, interest. When this start is made, the railway company expect the Board of Trade, and merchants, manufacturers and capitalists of Philadelphia to see that the bonds named in the contract are taken at par."

But this is not the grandest ocean scheme they have in view—for we hear they are considering the expediency of establishing their own line of steamers between San Francisco and Japan. Meanwhile the builders of the *National Railway* are industriously at work between New York and Philadelphia—*News*.

ATLANTIC & GREAT WESTERN R. R.—A plan of re-organization under the Presidency of Gen. Geo. B. McClellan (with Senator Thurman of Ohio and Wm. B. Duncan as large owners.) is talked of in Cincinnati. This contemplates the sale of the road, and the issuing of new mortgages to cover securities, with a joint Co. Ten million, five hundred thousand dollar bonds are to be issued in place of the first divisional bonds, \$7,000,000 in place of the second bonds, and \$22,500,000 in place of the consolidated bonds, a total of \$40,000,000. The total indebtedness of the road now is, in round numbers, 52,000,000, and the proposed new capital is fixed at \$60,000,000. All the old creditors are to be secured, and the road to be freed from debt at the earliest possible moment.

The New Drift of Money Capital.

The Secretary of the Treasury has given notice that he expects soon to begin funding the outstanding Five-Twenties into new Bonds, having from ten to forty years to run, and bearing 4, 4½ and 5 per cent. per annum respectively. Preference is given to the subscribers to the new 5 per cent. Bonds in proportion to the amounts of the lower rate Bonds which accompany them. In other words, Mr. Boutwell expects to convert the fifteen hundred millions of Five-Twenties now out, into the same amount of Bonds, whose average rate of interest he means to make as near 4½ per cent. interest as possible. Such is the steady advance of our national credit abroad, that Five-Twenties are now nearly at par in gold, and Ten-Forties are only a few points below them. With the cessation of war in Europe, and the return of capital and labor to our shores, the improvements must continue to increase, until the Secretary is enabled to give notice that the old Bonds, upon which privilege of redemption is already reached, will be paid off, and after a certain date cease to bear interest.

It is a pertinent question of the day, especially to capitalists and holders of Government Bonds, "What new channel will this amount of capital, now fixed, be likely to flow into?" Will the holders consent to accept the new 4½ per cent. Bonds in exchange, or will they abandon Government Bonds to foreigners, national banks and the like, with whom the lower rates of interest are satisfactory? Now 4½ per cent is a low rate of interest for this country; although there is every probability that as property accumulates the tendency of the interest rates will be lower; yet the average for the older States is nearer 6 per cent., and in the Western States nearer 10 per cent. The guarantee and superior mobility of Government Bonds are advantages which will always tell in their favor. Before the war, there were many corporate and private parties whose credit ranked equally high with that of the United States. There are some of them to-day whose securities have equal readiness of sale, with nearly equal market values. The issue of paper money, and the outpouring of twenty-five hundred millions of interest bearing obligations of the Government, created a revolution in our banking and financial usage. Will not the withdrawal of these vast sums into the Sinking Fund bring about a counter current.

A railroad is about the most indestructible and powerful and wealth producing agent known to our time. The whole people have grown sick of railroad stocks or shares, for they are too much connected with gambling risks. But mortgage bonds are a safe compromise between unwieldy liens on real estate and the more mobile but more treacherous stocks.

In railroad mortgages, however, as in most investments, selection is important. While there are few of which it may be said that they are baseless, there are some which are not only safe, and yielding a fair rate of interest, but which have such personal and material support that they will improve in estimation as time passes. Of the great railroads of the country, we have had occasion heretofore to refer to the Pacific Central road, in which the Government has so large a moneyed interest, and which must be for years, without a rival in revenues. Its securities are now regularly quoted at the money centers here and in Frankfurt. Beside it, perhaps, in importance, as we have said, may be

placed the Great Central line between the Atlantic and the West, the Chesapeake and Ohio, whose directory comprises some of the best names in American commerce. This line which is near completion, will ultimately command an enormous freightage by reason of its short line between inland and sea navigation, its low grades and iron and coal deposits. There can be no better drift for unloosed capital than into the securities of such enterprises.

The Railway System of Europe.

The railways of Europe and America form systems by means of which the business circulation of nations is kept up. But the two systems differ very materially. The European system was devised with a full recognition of the public necessities and ultimate interests involved, while our own has, until quite recently, been a natural growth controlled by no particular policy, and restrained by no governmental authority. Many of the European roads were either constructed by the governments, or under grants which allowed the authorities to retain control of them—Great Britain, we believe, being the only exception. In France there were, according to the latest reports, over nine thousand miles of railways in operation, all constructed since 1836, at an average cost of \$125,000 a mile. They were built under the supervision of the government, and were largely aided by government loans. They are now leased to six great companies, for a term of ninety-nine years, and pay the government ten per cent. of the great receipts. At the end of the lease the roads revert absolutely to the government, but meanwhile the mails are transported free, and troops and government property at reduced rates. The rates to be charged the public by the roads for freight and passage are fixed in the leases, and are so profitable that the stock of the companies steadily commands a premium. From their yearly profits the companies are also obliged to put by a certain sum which, at the end of the lease, is to be used to reimburse the shareholders for their original investment. This tends still further to give stability and public favor to the stocks.

Belgium has but 1,250 miles of railway, constructed at an average cost of \$91,500 a mile. These roads like those of France, were constructed partly by the government, and partly by companies which received their franchises on condition that their capital should be gradually refunded, with a liberal interest, and that thereupon the roads should revert to the State. At first the Belgian roads returned no profit, but of late years, by reason of increased business, they are paying the shareholders seven per cent. per annum. Prussia has 3,800 miles of railway, costing \$83,700 per mile. Of these lines, about one-half are worked entirely by the government, and the rest by companies under concessions very similar to those made in France. One feature of the Prussian system is peculiar. The government will not permit the construction of competing lines, nor allow combinations between any two or more lines.

Austria has 3,700 miles of railway, costing an average of \$108,500 per mile, and constructed by companies under concessions by which the roads become the absolute property of the State at the end of ninety years; meanwhile the rate of fare and freight charges being regulated by the government. The roads have proved profitable, and have paid divi-

dends of seven per cent., which seems to satisfy the Austrian capitalists, even with the prospect of obliterating the principal at the end of ninety years.

The railway system of England has been built upon an entirely different plan from any of the Continental Powers, and with the exception of the stricter governmental control which has been exercised it is not very different from our American system. The roads have been built by private companies, and without restriction as to competition. There are 14,247 miles of railway in Great Britain, representing an aggregate capital of \$2,511,314,435. The peculiar feature of the system is, that although the roads were built by private enterprise and capital, and do an enormous and increasing business, they do not, in the majority of cases, pay anything like remunerative dividends to the shareholders. Many of the principal lines have made no dividends for several years, and others make from one to three per cent. The London, Chatham and Dover, which cost fifty million dollars, has never paid a dividend, nor even the interest on its first issue of bonds, and is now in the hands of a receiver. It seems strange to read in the London *Railway News* that some of the roads are really in a flourishing condition as compared with past years, and that they have declared dividends ranging from four and a half per cent. to two and three per cent. The result in Great Britain is that railroad investments have been almost total losses, and that the system has become so involved, and the stocks so depressed, that it has been seriously proposed that the government should purchase all the lines at their actual market values, and run them in the public interest. The most sagacious railroad men in England express the opinion that ultimately this policy will be adopted, and that rates will then be put at a figure barely sufficient to defray the cost of maintaining and operating the roads. It will be seen that in all the Continental States such a policy is already provided for, and it seems probable that it will eventually become a general feature of the railway system of Europe.

LIME AND MORTAR.—The main results of certain recent experiments made to obtain accurate information on the process of the hardening of lime and mortar, as applied for ordinary building purposes, are that the freshly applied mortar gives off, at first, water only, by which process the particles of lime begin to adhere together, afterwards carbonic acid begins to be absorbed, and thereby the solidity of the mass is increased. The last stage of the drying of the mortar coincides with that of saturation of the lime with carbonic acid; and this process causes the fixation of the porous bricks with the mortar. The absorption of carbonic acid alone, without previous dehydration, never causes ordinary mortar to become hard. Freshly made mortar exposed to an atmosphere of moist carbonic acid remains soft; while mortar placed under a bell-jar filled with carbonic acid, and standing over a basin filled with strong sulphuric acid, becomes rapidly hard. Large quantities of mortar especially with a limited exposure to air, take months, or even years to become hard.

The cost of running a steamer a round trip between this country and Europe is said to be about \$42,000 in greenbacks.

The Hoosac Tunnel.

This work is a standing wonder, and promises to be so for some time to come. We are continually hearing of the great things there being done, but the time has now arrived for a display of skill greater, probably, than will be required in anything that is to follow. The tunnel has been started from two points on opposite sides of the mountain. Midway between these two excavations a perpendicular shaft has been sunk 1,039 feet in depth, now reaching the level of the bottom of the tunnel that is to be, and uncovering a space 27 feet by 15. From this underground chamber, smaller than many parlors, a straight line must be run by instrumental and mathematical calculation which shall in its prolongation exactly meet the two portions of tunnel already started on the opposite sides. The *Scientific American* thus explains the difficulties and intricacies of the problem:

"The shaft being at grade necessitates, probably, the most delicate and responsible act an engineer may ever expect to meet, it being necessary to lay down a line less than 27 feet in length at the bottom of a dripping dark shaft 1,030 feet deep, so that both ends of the line being produced shall coincide with the terminal points of the tunnel, each being distant over 12,000 feet from the center of the shaft. To increase the initial difficulty, the top of the shaft is on the summit of a rugged mountain, from 1,500 to 1,800 feet above the grade of the tunnel at its termini. It is no light responsibility to assume charge of this operation. The state of Massachusetts has had manufactured a colossal transit instrument, of the most elaborate and perfect construction, costing \$3,000. The most accurately verified lines have been laid down over the mountain, extending long distances beyond in both directions to the tops of neighboring mountains. By the accuracy of this instrument and its manipulation, the line of 27 feet will be permanently defined, requiring wonderful exactness, and from its extremities the plummet alone can reach the bottom of the shaft. These plummets must of necessity be weighty and beautifully poised, and will require to be suspended in oil to produce perfect rest and protection from the faintest vibration of the air. The most delicate cords, consistent with strength, must be used to suspend them, and after all is done that science can suggest (being perfect as to theory) any intelligent mind can understand how delicate and fraught with danger is the practical part of the operation to the engineer, and what grave effects the slightest error would produce on so small a base as 27 feet. It is quite possible the motion of the earth may affect the plummets more or less; but this point has not yet been thoroughly investigated."

Not only the motion of the earth, as the *Scientific American* states, but the mountain-mass by attraction may disturb the perpendicularity of the plummets. But it is a fair question for an "intelligent mind" to ask whether plummets are the only practicable devices which science has to suggest for the determination of this line at the bottom of that shaft as this journal implies. The longest projections of straight lines we know of are those which come from distances measured by the hundreds of millions of miles, and at the terrestrial extremities are caught in exact prolongation by telescope tubes a few feet long. It is certainly not impossible to use rays of light instead of plummets nor unheard of either. There are quite a number of devices by which light can be thus used

for the alignment, especially with the help of magnesium. Not only can the different devices check and prove one another, but any of them should be, at least, more reliable than a thousand foot pendulum.

The New Anglo-Russian War.

The news of the probable extension of the war all over Europe, and the world, by the sudden action of Russia in reopening the Eastern question, is the absorbing topic of interest. This event was anticipated at the commencement of the European war, but the quick succession of important events in France rendered other nations oblivious to the cloud that hung over them. It is now seen that the circumstances of the present campaign in Europe have tended to precipitate the action of Russia. France is utterly powerless to defend the Crimean Treaty of 1856, which she was so instrumental in establishing. And France is the only power in Europe whose opposition Russia has reason to dread. It is the only nation that could place a great army in the field. England is great only as a naval power, and in a war in defence of the Ottoman Empire the conflict would be chiefly on land. As for Prussia, the inferences are almost irresistible that it is in league with Russia, so that the Czar has nothing to fear from that power.

The treaty of 1856, which Russia proposes to nullify, was intended by France and England to protect Turkey from the ambition of its powerful neighbor. It prohibited Russia from establishing any arsenals on, or introducing armed ships into, the Black Sea. Prince Gortschakoff is no doubt correct in stating that this treaty was a sore humiliation to Russia. At any rate it is one that could only be observed so long as the means existed for enforcing it. The defeat of France by Prussia removes one powerful opponent, and Russia has only England to deal with. The latter has been prompt to take up the gauntlet. Earl Granville, the English Secretary for Foreign Affairs, has, in courteous diplomatic phraseology, given notice to Russia that the infraction of the Treaty of 1856 will be regarded as a cause of war.

England is endeavoring to build up a European alliance against Russia. It is said that Austria, Italy and Turkey will unite with her. But Italy has troubles enough at home, and has not sufficient interest at stake to fight in defense of Turkey. Austria has a much deeper interest in the question, but it is doubtful whether it is sufficient to cause her to engage in war in her present exhausted condition. At any rate she can render no adequate opposition to Russia, and will be only a poor ally for England to depend on.

The ultimate arbitration of this question devolves on Bismarck. If Prussia aids Russia there will be an end of the matter. The Treaty of 1856 will be broken, and the Czar will transfer his capital to Constantinople. There are strong grounds for believing that this is the real programme. The astute Bismarck arranged long ago that, in case of Prussian conquests in the West, Russia should be at liberty to indemnify itself by corresponding annexations in the East. It is not merely Alsace and Lorraine that Prussia requires. The acquisition of Luxemburg, and the ultimate annexation of Belgium and Holland are the real objects of German ambition. For this great prize, Germany may well afford to allow Russia to absorb Turkey.

England is bound to fight against this policy. It threatens her Empire in India, and secures a fatal preponderance to Russia and Germany. Whether she can succeed in preventing it, the future alone can decide. But if Russia and Germany are united, as seems probable, the rest of Europe can do but little. At the present time every thing seems to portend a prolonged and dreadful war all over Europe. The war will be felt in every quarter of the world, and is destined to change the boundaries of nations, and powerfully affect the welfare of mankind.—*Economist*.

A NEW MODE OF FIXING RAILWAY BRIDGES.

—Yesterday afternoon a party of engineers and scientific men, headed by Sir John Rennie, visited the works of Messrs. Campbell, Johnstone & Co., at Silvertown, to witness the exhibition of a new method of launching girders or bridges without scaffolding. The structure which formed the subject of the experiment was two sections, each 110 feet in length, of a bridge, which is to be thrown across the Ganges at Cawnpore, and which will carry, above, the rails of the Oude and Rohikund Railway, and below, a good and substantial roadway for bullock trains or ordinary traffic. Without entering into details, this bridge may be described (and the description will be generally understood by engineers) as a lattice tubular girder, the height over all being ten feet eight inches, and the bullock road nine feet wide by eight high. The bridge, when complete, will consist of 23 spans, each of 110 feet in length, resting upon cylindrical piers of brick-work, and the weight of materials in each span will be about 75 tons. The method hitherto adopted for launching girders or bridges of these dimensions has been simple haulage by means of chains and pulleys, which has been attended with great loss of power, delay, and many other inconveniences. The mode adopted and devised by Messrs. Campbell, Johnstone & Co. avoids all waste of power, has nothing to do with either chains or pulleys, and depends entirely upon direct propulsion. The bridge, or section of the bridge, having been built up on the shore, rests at each end upon a series of ten wheels, which are themselves supported by ten hydraulic rams, five on each side; the number may of course be diminished or increased, according to the work to be performed—and to these wheels, which play upon a rail beneath the bridge, there is fitted a worm and worm-wheel moved by a ratchet brace, which is set in motion by five men on each side working haulies up and down, like the pumpers at a fire-engine, who, as we saw yesterday, can propel 150 tons at the rate of nine inches in the minute, a speed which, with a slight alteration of the machinery, will be increased to a foot. Of course, the exact method of dealing with each particular bridge must, to a certain extent, depend upon the special circumstances of the situation. In this instance a bridge 2,530 feet, or close upon half a mile in length, is to cross the Ganges in 23 spans of 110 feet each. Every section (each including two spans) will be launched from the same shore, and all will be driven across by the apparatus which we have described, and which will be moved from pier to pier as required. The bridge was designed by Mr. Heppel, C. E., and has been constructed by Messrs. Campbell, Johnstone & Co., to whom belongs the entire credit of devising the apparatus for its fixture.—*London Daily News*.

Iron vs. Wooden Railway Cars.

Some day, we hope not many years hence, passenger cars of iron will be rule rather than exception, and managers will find that this class of rolling stock combines more elements of safety and eventual economy than anything that is now in use. The extra weight of iron has been the principal reason why our railway managers have looked with so little favor upon the different devices for using that metal for cars; but this reason is growing of less importance year by year as the weight of wooden cars is increased. At present, many of the eight wheel passenger cars weigh eighteen or twenty tons each, and the new styles of cars demanded by modern luxurious taste, such as sleeping, palace and compartment cars, weigh fully one-half as much more, and it is within a few days we have read a description of one of these just finished for a Western road that weighed thirty-two tons. Most certainly it looks as though railway managers are getting to pay much less regard to the question of weight of rolling stock than they used to do, and will now look with much more favor upon the efforts of inventors to produce a passenger car that combines great comparative safety to passengers, and stability in its best sense. With the improved character of the permanent way and superstructure, and the improved devices for relieving the movements of rolling stock from the effects of jars and concussion incident to rapid locomotion, a greater weight upon each wheel is rendered practicable, that is, without perceptibly increasing the cost of hauling, or shortening the life of the rolling stock or the rail. Modern practice and experience show this to be the fact, and if managers continue to err in this direction let us hope that they will take the best means for utilizing the extra weight so as to give the passenger a reasonable assurance of safety from the dire effects of collisions where each broken piece of wood becomes an instrument of suffering and death, and in case of fire where the wood, oil, paint and varnish, become a funeral pile for the unwary. We believe in iron passenger cars because they can be made to last twice or thrice as long as the wooden cars do. While we have assumed that iron cars will weigh more than wooden ones, we by no means grant the fact. Because the first one or two iron cars, rough and uncouth in design, contained an undue amount of material and therefore of weight, it by no means follows that improvement can not be made upon those designs, and we believe that if the combined railway managers should offer a liberal sum for the best design for an iron passenger car, competition among inventors would soon produce a device combining the best elements of strength, safety and economy. We know no reason why improvement in this direction is not just as possible as in any other branch of mechanical engineering; and when railway managers get over the notion that an iron railway car must of necessity be exceptionally heavier because it is made of that metal, and are willing to look with favorable eyes upon the effort to make a light and strong iron car, we shall find the battle in favor of greater safety and eventual economy more than half gained. Rusty prejudice is the greatest foe of all improvements in railway devices, and has been ever since George Stephenson successfully combated it by the success of the locomotive. Meanwhile, let not railway managers forget to use and adapt the best safety devices for wooden cars. Let them see that these cars are strongly framed and

guarded by all well proved improvements calculated to resist the effects of the hard service to which they are exposed. The next thing to having a better article is to make, the best use of that which we have, and wooden passenger cars can be made comparatively safe, if managers are willing to pay a fair price for the skill and labor necessary to make them so.

How Steel Rails are Made in Swansea.

This was made patent to a distinguished company of some one hundred and fifty members of the Iron and Steel Institute of Great Britain, at their meeting in South Wales, on the 8th ult. The steel works were formerly used as silver works by Messrs Dillwyn, Richards & Co., at Landore, but about two years ago they were adapted to the production of steel by Siemens' patent, and are now doing a flourishing trade, extending at every point. The staple of the works is steel rails, for which there is a great demand, the Great Western Railway Company alone being capable of taking all that can at present be produced at the works. The process of manufacture is simple. Hematite pig iron is passed through puddling furnaces heated with gas at a high temperature. "From these the iron is taken to steel melting furnaces, where it is made liquid, and cast into ingots. These are conveyed in a heated state to a steam hammer, weighing eight tons, each ingot being twelve cwt., two qrs., in weight. They are compressed by this means, then cut in pieces, and passed through iron rollers till they are attenuated to the necessary length and shape, when the ends are cut off by means of a circular saw while still at red heat, and the rail is finished. The smelting and heating are all carried on by means of gas. The mode of testing the rails is by means of a heavy blow from a hammer, or "monkey," suspended at heights varying according to the necessary test. In the present case, a rail was passed across, and a hammer eighteen cwt., was allowed to fall from a height of twenty-four feet. In the first test the rail was broken in two, but in the next it was bent only, and a second blow from the "monkey" straightened it again. There was the slightest shadow of a fracture from the strain on the metal, and the test was pronounced by all to be particularly satisfactory in every respect. It may be stated that the test required by the Great Western Railway is that of the same weight falling from an altitude of six feet only. The various processes of manufacture were carefully explained, and were viewed with interest by all present. Some specimens of steel wire were also shown, to illustrate the toughness of the metal.—*Engineering and Mining Journal*.

DUST.—It may be interesting to persons who suffer from the direct effects of the dust, or who are necessarily exposed to the night air in places where there may be malaria to know that a respirator of clean cotton wool, packed moderately close, sifts the air and makes it perfectly pure. It is believed that even the penetrating malaria of vegetable decay is excluded by such a sieve. The construction of the respirator is of no importance; the only thing to secure is that the air passes through the cotton before it is breathed. Such an instrument if it is only a small roll of cotton folded in a handkerchief and held over the nostrils, will afford essential relief to every one who finds the dust of the streets or of railway cars irritating to the throat and lungs.

ENAMELING SLATE.—By this process are produced imitations of the rarest marbles at a tithe of their cost. The substance thus produced is not only cheaper than marble, but bears a much more brilliant and permanent polish than stone will, while it has for its base a mineral infinitely stronger and more durable. The process of enameling is interesting, though very simple. It is performed either by "dipping," "splashing," or by splashing and sponging combined, and some of the more elaborate patterns by hand-graining. The colors are applied by either of these methods, and the slab is then placed in an oven, or heated chamber, the temperature of which is maintained at from 130° to 250°, according to the size and thickness of the slab. In this oven it remains for a period determined by the size of the slate, generally averaging twenty-four hours. It is then withdrawn, and a coating of specially prepared enamel applied. Again it goes into the oven, emerging from thence to be vigorously pumiced to reduce all inequalities of surface. This process of baking and pumicing is repeated with variations three times more, and the slab is then in a condition fit for polishing. The polishing process is formed; firstly, with woolen cloths and fine sand; next with French merino, the finest and softest that can be obtained; and finally with the hand and powdered rotten-stone.

By the process thus hastily described, the most elaborate marbles and stones can be imitated. Specimens of Egyptian green, Lomachello, and St. Ann's marbles, Pyrenees green, Swedish and purple porphyries, all kinds of granites, malachite, and lapis lazuli, have been so well finished as scarcely to be distinguished from the costly originals. Architect's original designs can also be executed in inlays of any pattern.

The enameled slates are principally used for chimney-pieces. They are largely in demand for facias, consoles, table tops, etc., for which their fine and durable polish well fits them.

STOVES IN THE CARS.—North of New York it has been for several years the practice to heat the street cars, and especially on long routes. The very simple arrangement of a diminutive coal stove in one corner of the car deprives only one person of a seat, and makes the twenty-three others who have seats very comfortable. Weather prophets predict an exceedingly cold winter. We have had a good intimation of it in the snow storm of Friday, and the raw, bleak weather of Saturday. In view of this, would it not be well for the railroad companies to make some provision for the comfort of their hundreds of thousands of passengers, many of whom are obliged to ride from eight to ten miles each day in the cold and cheerless cars? Brooklyn has two routes supplied with stoves, and the innovation is hailed with delight. We know that the people on this side would welcome such a change too, but we do not feel as sure that the companies generally will be disposed to make it.

The capital invested in nine steel manufacturing establishments in Pittsburg, amounts to \$4,500,000. The annual products amount to 18,500 tons. The sales of the various establishments for the year ending 1870, amount in the aggregate to \$4,260,000. The amount sold in Eastern and Western cities by the agents of the respective firms engaged in the manufacture of steel, amount to \$1,200,000, making a total of \$5,460,000.

STATISTICS OF LIFE—The yearly mortality of the globe is 33,333,333 persons. This is at the rate of 91,554 per day, 3,730 per hour, 62 per minute. Each pulsation of the heart marks the decease of some human creature.

The average human life is 33 years.

One-fourth of the population die at, or before, the age of seven years.

One-half, at, or before, 17 years.

Among 10,000 persons, one arrives at the age of 100, one in 500 attains the age of 90, and one in 100 lives to the age of 60.

Married men live longer than single men.

In 1,000 persons, 95 marry; and more marriages occur in June and December than in any other month of the year.

One-eighth of the whole population is military.

Professions exercise a great influence on longevity. In 1,000 individuals who arrive at the age of 70, 43 are clergymen, orators and public speakers; 40 are agriculturists; 33 are workmen; 32 are soldiers and military employees; 29 advocates or engineers; 27 professors; and 24 doctors.—*Exchange*

—The Elevated Railway was in operation for a day or two recently, and carried passengers from the Battery up to Thirtieth street in less time than they ever went over the same route before, and in spite of the many provoking mishaps (which always retard the perfect working of new complicated things,) we expect to see the road in satisfactory condition before next spring. Some pronounce it a "stupendous folly," and we remember hearing our long since deceased grand sire say that railways of any kind were foolishness and would never pay.

—While we are waiting to see what *Beach's Underground Railway* will amount to in the hands of the next State Legislature, a "Pneumatic Car" is attracting the attention of street passengers in Chicago. The motive power of the Chicago car is compressed air, the machinery being similar to that of steam, and placed under the seats. There is no noise, no smoke, no heat. It is said to be much cheaper than horses. Experimentalists say that what costs \$700,000 per annum for horses, &c., can be done by compressed air for \$200,000, and be better done at that, with a speed of one mile in ten minutes.

—The Third Avenue (horse) railway runs 175 cars daily, part of the time at intervals of 45 seconds—and the 25,500,000 passengers whom they carried last year paid \$1,411,383 80. The largest day's receipts were \$5,519.48. They employ 1,649 horses, whose food during the year cost 260,000. In the same time the company have paid as salaries to conductors and drivers \$289,464.28, and to mechanics, hostlers and stable men, \$200,124 86. They have also paid for revenue tax \$50,000, and for accidents and charities \$3,760. They have also laid three miles of new double track, and erected a new depot at Harlem at a cost of \$330,000.

—The loss by the collision on the Grand Trunk Railway of Canada recently is estimated at over \$200,000.

COTTON SEED FOR SMYRNA.—A new branch of commerce has just been opened between here and the southern part of Europe and Asia. An invoice of forty-five tons cotton seed was shipped last week from New York to Smyrna for the purpose of planting, the object being to start the raising of cotton in those sections from American seed.

Attempts are proposed to introduce sponge growing into the industries of the harbors on the north-eastern coast of our continent. It seems that one species of the sponge has recently been found thriving in Portland harbor, and it is inferred that it would live in all places on our eastern coast south of that place, and that the naturalization of choice sponges is a matter of national importance.

The aggregate valuation of real estate in Cincinnati, exclusive of the recently annexed territory, is \$137,762,998. The property held by the churches is nearly four millions, and the valuation of the parks and cemeteries is over two and a half millions.

There are over 70,000,000 acres of unoccupied land in Texas.

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CHAS. S. HELLER.

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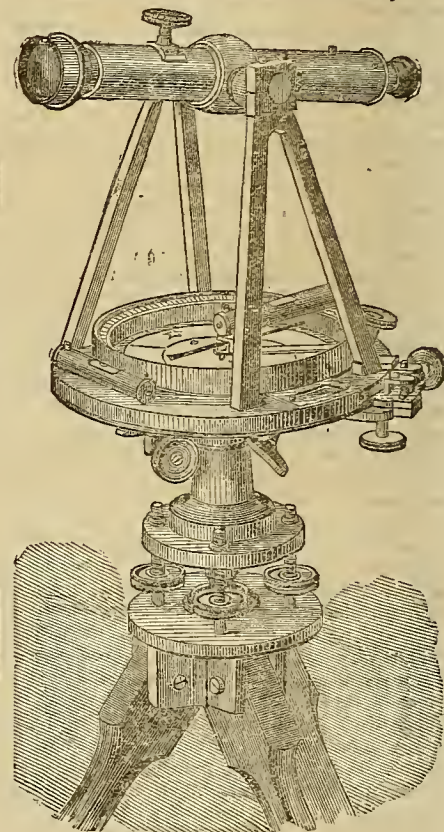
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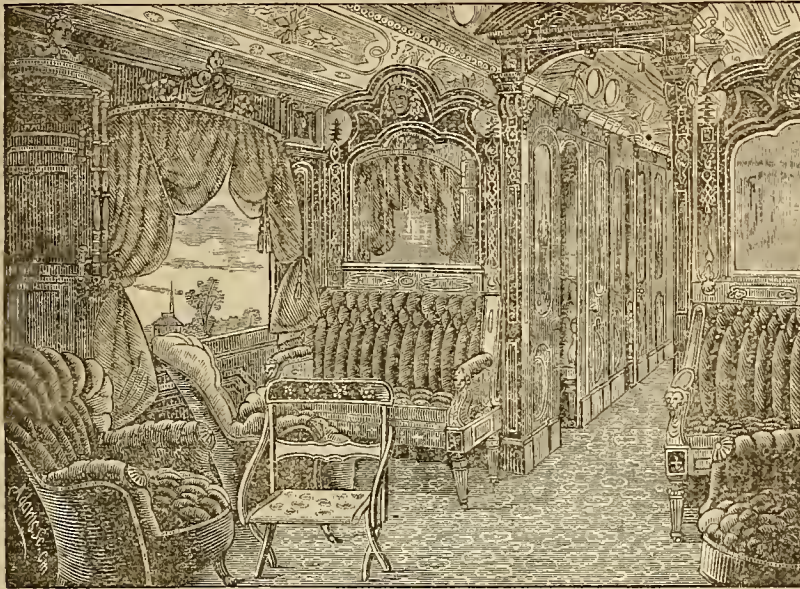


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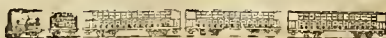
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SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omnibus-car for passengers.

The Old And Reliable Route.



Through to Pittsburgh without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburgh, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

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W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati **7.20 A. M.** Daily (except Sundays). Stops regularly at Walton, Elkhart, Sparta, Liberty, Worthville, Campbellsville, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle; Carrollton, Sulphur, Pendleton; arrives at Louisville **12.05 P. M.**

No. 6 SOUTHERN FAST LINE leaves Cincinnati at **1.20 P. M.** Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville **5.20 P. M.**

No. 8 MAIL leaves Cincinnati **5.00 P. M.** Daily (except Sundays). Stops regularly at Walton, Elkhart, Glencoe, Sparta, Liberty, Worthville, Campbellsville, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville **10.00 P. M.**

No. 10 NIGHT EXPRESS leaves Cincinnati at **11.15 P. M.** Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elkhart, Glencoe, Sparta, Liberty, Eagle, Campbellsville, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at **5.00 A. M.**

No. 6 connects at Lagrange with the Lexington Train, arriving at Frankfort at **6.14 P. M.**, Lexington **7.45 P. M.**, QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty St., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburgh and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMERGENCY—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburgh, Chicago, and Cincinnati. Sleeping-Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburgh, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:40, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:10, 7:22, 7:40, 8:10, 9:00, 9:30, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty St., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich St., and at the principal hotels.

R. E. RICKER, Superintendent.

B. B. EDWIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
A. J. HODDER, - - - - }

CINCINNATI, THURSDAY, DECEMBER 22, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

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WRIGHTSON & CO., Prop'r's.

Dayton, Stillwater Valley & Saginaw Railroad.

This is really but another name for the old Cincinnati and Mackinaw Railroad, and all the arguments that have been used in favor of the old scheme for the past twenty years, apply to the new venture.

When this great work was concocted and written up by one of the editors of this paper, Mr. Mansfield, it might have been premature, but from that time to this it has never been lost sight of by those who were at all intelligent upon its merits. And in spite of all the loading that has been piled upon it by those who ought to have sustained it, railroad men have been steady in their faith that it would sooner or later be accomplished.

The project, always a good one, has lost nothing by lapse of time. It is to-day of more importance than ever. Time and the development of the railway interests of the country shows, that it is a necessity, and possesses capacities greater than were ever claimed for it, by its original and most ardent friends, and that had the work gone steadily on from its inception, and been completed ten years ago as ought to have been the case, the country through which it is to pass would long since have been remunerated many fold the cost, and every cross road in Ohio and Michigan would have received immense benefits.

The Record has been the especial champion of this undertaking. All through its pages for the past eighteen years can be found reasons for the advancement of the work. Through all the misfortunes that

checked, and at times well nigh killed it, we have hung on, and stuck to it, full of hope and faith that a great line would be made nearly direct from this city to the Straits of Mackinaw, and that it would be the northern half of an axial line across the Continent.

We are therefore most heartily in favor of the new movement, that thus far has exhibited its largest development in a meeting at the Board of Trade rooms, at Dayton, Ohio, on the 17th inst, and that resulted in the preliminary steps for the organization of the "Dayton, Stillwater Valley and Saginaw Railroad Company," with a capital stock of one million of dollars.

This is cheering news to us, not only because a new class of men are earnestly engaging in this enterprise, but because we see from the report in the *Dayton Journal* of this meeting, that these parties, now styled as leading men in the work, are the identical ones who have for years opposed it, and labored with more zeal than judgment to thwart the plans of those who a few years ago were laboring with all their might, and expending their best means to promote its success. And we may here say by way of parenthesis, that had these parties helped, instead of hindered, half as much as they now promise to the Dayton, Stillwater and Saginaw organization need only consider the question of building a road from Dayton up the Stillwater Valley, to the point they now propose to intersect the Cincinnati and Mackinaw line in order to accomplish all that is now proposed.

But this is all in the past, and to be numbered among the mistakes men are subject to. Besides, such wholesome and wholesale conversions are somewhat compensatory for prior follies.

There is, however, the advantage of a fitting outlet and Southern terminus gained by this delay. No other that has been before proposed has been satisfactory, because the points were unimportant, and without the possibility of rising beyond mere thriving villages, and no business center like Dayton, or even Hamilton could be reached without absorbing or running over other roads that were in the control of companies whose interests were conflicting, or who were indifferent to the value of such a connection, or else by constructing parallel lines of road in the face of a vigorous opposition from the people and strong corporations, all of which is impracticable.

Dayton is a point of great importance in the Miami Valley, second only to the metropolis of the State, with a country about her of vast supplying capacity, with industrial resources, both varied and extensive, with large accumulated capital, an extended trade, possessing lines of railway that reach in nearly every direction, and a canal that joins her to the lakes and the Ohio river, that give her great distributing power. She is a business center too attractive to be passed by any great public

improvement that comes within her influence, she possesses natural and proximate capabilities, that under enterprising and enlightened management, insures her such a future as will make her the first interior of the State, and therefore a desirable terminus for any line of railway, however long or important.

Under the present scheme, this city will be reached by a direct line, and that through a country of great supplying power, and of sufficient area to sustain a railway with its local business. Thus is the old and vexed question of a Southern outlet for the great Northern road satisfactorily solved, and the project relieved of one, if not its greatest embarrassment.

There is no reason whatever, why this road should not be built. The country through which it is to run is particularly favored by nature for the construction of such a trunk.

There is not a hill of any moment to cut through or tunnel, not a stream of any magnitude to bridge, but few culverts to make, no obstruction to an almost air line, a susceptibility to the easiest gradient in the State, with an abundance of timber for ties, and building and fuel, and with stone and gravel for all necessary uses found in abundance proximate to the line, and the soil is fertile, and the people all alive to the immense value this improvement will be to them. And more, this road will be away from all competitors, and so central to a vast belt of country that there is not the slightest probability of its highest prosperity being interrupted with conflicting projects.

A well considered financial policy can be organized, and if placed under the direction of experienced energetic men who can inspire confidence of the public and command respect in the money market, the road can be built in two years from the time the work is fairly started, and it can be made well, up to a first class standard, and thoroughly equipped, and for a less cost per mile than any road of equal length in the State.

And what an enormous business will be done upon this thoroughfare! And how it will increase and swell with the development of the country, and the stimulus to industry that the making and operating of this road will produce. The timber and minerals and coal of the upper country will find their way down into this valley where they are in such great and constant demand, and the manufactures and products of this part of the country that enter into consumption thither will return, the immense agricultural surplus will find its market by this route to consuming points, or to cross lines leading to them. The stone of the Stillwater section will be sent northward to supply the region that has none, and the wood, and timber, and lumber and staves will return in exchange, and thus a most healthy and extensive transfer of commodities will take place, to which should be added the travel, and smaller traffic, and

mail matter, and expressage that will be done by a people so thriving and with such intimate business relations, that will give the road a productive business, add largely to the population of the whole belt of country it will supply, increase the value of property immensely, give Dayton the Southern terminus, a business now foreign to her, and her wares a new, extensive and profitable market.

Gen'l Hiram Walbridge.

These columns, devoted to the cause of public improvement and the national development of the country, appear to us to be peculiarly fitted to perpetuate to a class of readers the memory of a very good man, himself prominent for many years in these, as in other fields of effort, and whom death has recently removed from them. The person to whom we refer is Gen'l. HIRAM WALBRIDGE, who was recently buried in the city of Washington with many demonstrations of grief and distinguished honor. He was born in the State of New York, and died at the age of 49 years. At an early day his family settled at Toledo in this State. He was a bright, promising hoy, and particularly noted for the possession of those excellent qualities which promise success and distinction in the man. He was placed at school at the university at Athens, and by industry and thrift whilst there, contrived to possess himself of an education. The campaign of Harrison, in 1840, however, attracted him by events too exciting to be resisted, and he entered warmly into the canvass in behalf of 'Tippecanoe, and Tyler too,' and did sturdy battle to the end. Then he entered upon the study of the law in the office of our townsman (Tilden,) and it is said of him that he was a close and diligent student. An unexpected occurrence led him to visit the city of New York, where he expected to be detained but a few days, but it was ordered, probably wisely, otherwise. He was led to relinquish the practice of the law and to enter upon other and more remunerative pursuits. His condition in New York as an obscure stranger continued but briefly. Very soon he made himself felt, and he became widely known throughout the United States and the commercial centers of Europe as a thoughtful and sagacious business man, and to large numbers who knew him better as a student and a thinker. He was honorable in his business transactions, and largely successful, and left an estate estimated to be worth not less than a million of dollars. In politics, after the formation of the Tyler cabinet, he was democratic; but at the commencement of the rebellion he took the side of the North, and to the end of it, the North had no more active or zealous friend. He had the full confidence of Mr. Lincoln, and was consulted by him on many important occasions. He was by nature and taste adapted to the profession

of arms, and was at one time tendered by the President a high military command in the army of the North. He declined the honor, but was constant and active in his own unofficial ways in his labors for the cause of the Union. He was at one time a member of Congress from the city of New York, and there won distinction. But it was as a sagacious far seeing business man and public spirited citizen that he became most conspicuous. It is impossible with the space at our disposal to enter into anything like detail on this head. The life of Gen'l WALBRIDGE deserves to be written in a book. But we can say without exaggeration, that for the last fifteen years there has been scarcely a meritorious national work or commercial movement with which he has not been identified, always being noted for his just views and able advocacy. His personal qualities were more respected when best known. Though he had succeeded in gaining wealth, he was so far from being close and stingy that his liberality verged almost into a fault. He was an attached and steadfast friend, and always sensitive on every point of personal honor. He was extremely temperate in his habits and liberal in his benefactions. He had a fine personal presence and an easy flow of well chosen language, he was an accurate writer and impressive speaker, and was in every way calculated to impress himself upon the people about him, and to win their respect and esteem. The result was, that few men were better or more widely known, and he was for many years, on terms of easy and familiar intercourse with most of the leading men of the country, large numbers of whom united in tendering the last offices of regard and esteem due to mortality, and assisted in bearing his remains to the grave.

Great Convention of Railroad Representatives.

The principal officials of all the important leading trunk lines of railway convened at Erie, Pa., on the 19th inst. There are thirteen roads represented by forty officers, besides representatives of sleeping car and transportation companies.

The object of this gathering is to pool the earnings of the different roads represented, and make an equitable division of them.

Among the leading railway men in attendance are Horace Clark, Jay Gould, A. Boody, Louis Worthington, Oscar Townsend, Wm. H. Vanderbilt, Tom Scott and J. N. McCulloch.

It is expected the session will continue until Saturday next.

—For the convenience of railroads addicted to accidents, an arithmetical individual computes the value of a man's life in dollars. The amount that a laborer receives for one year's labor at \$1 50 per day is \$476 50, which amount is six per cent. on \$7,989, and the latter is therefore the cash value of a man to his family.

The Good Old Knickerbocker.

What a pleasure it is to do business with a reliable, first class and upright corporation like the Knickerbocker Life Insurance Company of New York. There is such a sense of absolute security that you are being justly dealt with, that you are subject to no extortions, that through all the intricacies of an extensive and complicated business, your rights, however small, are protected, that you will get what belongs to you, and that the object of your connection with them will be sacredly carried out.

This is the result of organizing the company upon correct business principles, and their placing its affairs under the supervision of men experienced in such matters, men of the highest honor and integrity, and who take a pride in building up a permanent business so extensive as to include interests in nearly every State in the Union, so profitable that every body connected with it shall be fairly remunerated, and so safe that there can be no liability to loss.

Such a company is like a splendid machine designed to perform some grand work; every part has its place, and once there can not get away; and these parts fitting exactly, the whole moves off powerfully and almost noiselessly, fulfilling the purpose for which it was constructed, making all those in its attendance happy with profits, and providing a large surplus to sustain itself perpetually in its highest condition.

We do not pretend to say that there are not other organizations as smoothly managed as this one. It would be very strange if there are not. All such are worthy of the highest public confidence. But as we know whereof we speak when we write thus of this company, we feel safe in our endorsement of it, and justified in calling it "The Good Old Knickerbocker."

—The electric signals used on the New York and New Haven railroad, it is stated work so well that other roads in New England are having them erected at all important crossings on their lines. When a locomotive strikes the connecting rod at a point half a mile from the crossing a red flag or light is instantly displayed from a box at the road crossing as a signal of an approaching train. When the crossing has been passed, the locomotive strikes another spring, and the red flag disappears. The same signal apparatus is attached to switches, to notify the engineer in time to stop his train.

—A narrow gauge (2 ft. 6 in.) will be built in Pennsylvania, says a correspondent of the *Iron Age*, from Allentown to Harrisburg, via Reading and Lebanon, along the Tulpehocken and Swatara creeks. The Fairlee Engine will be used, the cost of construction and equipment being one-third that of the 4 ft. gauge. A speed of twenty-five miles an hour is expected, and freight carried at one cent a ton per mile.

What's in the Wind?

The *Gazette* of Saturday last in its money article makes the following startling announcement of the hedging process that is going on about us.—

"It is now currently reported that the Pennsylvania Railroad Company is negotiating for a lease of the Cincinnati, Hamilton and Dayton Railroad and its connections, and that President McLaren has expressed himself in favor of it. For some days there have been whisperings unfavorable to the C. H. & D. stock, with a view to depressing the stock for the purpose of buying. The renewal of the talk of a second railroad from Dayton to Cincinnati is part of the programme of the ring who are buying the stock in anticipation of the lease. There are many reasons why the Pennsylvania road should desire possession of the C. H. & D. property. It now owns a road from Springfield, Ohio, to Richmond, Indiana, via Dayton, and from Richmond to Chicago. The Hamilton and Eaton and C. H. & D. would complete its line from Chicago to this city, would enable it to gobble the Junction road if it should so desire, and would also enable it to dictate terms to the Atlantic & Great Western and Cincinnati & Sandusky roads, both of which run over the C. H. & D. track, between Dayton and Cincinnati. It would virtually place all the Eastern roads entering this city, with the exception of the Baltimore & Ohio, under the control of the Pennsylvania Central, as it would, also, all the roads going west except the I. & C. and O. & M. There is to be a meeting at Pittsburg in a few days (adjourned from New York) to consider the question of pooling the earnings of the four trunk lines at all competing points. The object of this is to destroy competition, and to place the public in the power of a railroad monopoly. The possession of the C. H. & D. Railroad by the Pennsylvania Company would enable the latter to force the Erie and New York Central to terms. Putting all these things together, it will be seen that movements are on foot of more than ordinary interest to our citizens. When the fight between the public and railroad monopolies, which is rapidly approaching, occurs, the latter promises to have control of all the important lines of travel. This will give the monopoly a decided advantage.

C. H. & D. stock has been sold down to 86@87, but it was not to be had this afternoon at 88.

NEW YORK CENTRAL RAILROAD TAXES.—The case of the United States vs. the New York Central Railroad excites some interest, and so far, Commodore Vanderbilt has awakened considerable sympathy for his side of the issue. The Government takes a scrip dividend of 80 per cent., made by way of watering the stock. The claim of the company is that the 80 per cent. certificate is not a scrip dividend within the contemplation of that provision of the law which levies a tax upon such dividends, and that they have paid the tax upon the dividends which have been declared on such certificates since they were issued, the same as upon the old stock. The amount of tax which is contingent upon the decision of the case is \$1,100,000, which is quite worth disputing over. The Commodore is granted to the 1st of January to prepare a statement, showing, as he says he can, that the "watering" means were realized before the law taxing gross receipts was passed, and consequently are not liable. —*Ledger*.

A State may not Share the Profits of a Railroad Company.

A RIGHTEOUS DECISION.

We have received a copy of Judge Dobbin's decision in the case of the State of Maryland against the Baltimore and Ohio Railway Company, from which we abstract the following:

"In 1832, the Legislature of Maryland, in amending the act of charter to the Baltimore and Ohio Railroad for the construction of the branch road to Washington, among other stipulations provided: 'That the Baltimore and Ohio Railroad shall pay to the Treasurer of Maryland semi-annually, in each and every year, one fifth of the whole amount which may be received for the transportation of passengers on the said branch railroad.' Under the provision the company have rendered accounts and paid into the State Treasury one-fifth of the receipts for transportation of passengers up to June 30, 1863, amounting to several millions of dollars. Since the latter date the company have declined payment, and withheld the one-fifth of receipts on the ground that it was a tax on passengers for the privilege of passing through the State, the company assuming that the point was decided by the Supreme Court of the United States at the September term in 1867 in the case of "Crandall against the State of Nevada." Under a joint resolution of the Legislature of Maryland, the Attorney General now brings suit to recover the one-fifth received since June 3, 1863, amounting to about \$300,000. Judge Dobbins granted the prayer of defendants, that the act of 1832 is unconstitutional, because it conflicts with the Constitution of the United States, and the further prayer, that the fact of the payment up to June 3, 1863, did not stop the defendants from denying the constitutionality of the act, and that the plaintiff is not entitled to recover. Under this decision of Judge Dobbin, in an elaborate review of the whole question, the jury rendered a verdict for the defendants. Counsel for the State filed exceptions. The Court intimated that each passenger could recover from the Company the one-fifth (or thirty cents) of the fare exacted by the Company.

WALL 'EM IN—THE EVIL OF CHEAP FARES.

The Dayton *Journal* denounces cheap railroad excursions as "diverting trade to Cincinnati which belongs to Dayton," and because that "people who are induced to visit Cincinnati by low fare and the prospects of a pleasant excursion are irresistibly tempted while there, to make purchases which otherwise they would make here, and just as cheaply." To use a phrase of the journalistic household, "this is sad," and this is not the worst of it. The railroad offers facilities in all sorts of ways that tempt the good citizens of Dayton to accept the city wares and notions instead of those of home production. It even takes in the Cincinnati *Gazette*, filled with all sorts of tempting reading matter, causing the soul of the Dayton *Journal* to burn with envy, and to break out into accusations and vituperations and maledictions like a son of Shimei. The only way to remedy the thing is to build a wall after the manner of the Chinese, so that nothing may go in or out of Dayton, and thereby the citizens may be shielded from temptation. —*Gazette*.

Narrow Gauge Railroads in America.

Mr Henry F. Q. d'Aligny, a New York engineer, writes as follows to the *United States Railroad and Mining Register*:

I have read with great interest the article on "Economy of Narrow Gauge Railways," published in your last issue, No. 752, November 5, 1870. The writer is perfectly correct in his views, and his suggestions are right; I beg leave to state that his hopes will soon be realized. In a short time there will be branch roads built on the "Narrow Gauge Principal" (2 feet 6 inches,) for the general transportation of minerals, freight and passengers.

It is contemplated that the first road will be constructed this coming winter in the Hanging Rock Region of the Ohio river (Kentucky,) for the purpose of connecting the Iron Hills mines with the Eastern Kentucky Railroad, which has its terminus and landing at Riverton on the Ohio river.

In view of the construction of this branch road, (9 miles,) Mr. Mat. Ellis, the President of the Iron Hills Railway Company of Kentucky, has, for the past three years, examined and studied the different systems of narrow gauge roads established in several mining districts of Europe.

Belgium—from Antwerp to Gand..... 3 ft. 8 in.
France—from Commeny to Mouthon..... 3 ft. 0 in.
" Mondalzac Railroad (branch of the
" Paris & Orleans Railroad)..... 3 ft. 6 in.
" Creuzot..... 2 ft. 8 in.
Prussia—Broelthal Railroad..... 2 ft. 8 in.
" Luisenhal..... 2 ft. 4 1/2 in.
(300,000 tons traffic, 10 miles long.)
England—Festiniog & Portmadoc Railroad..... 2 ft.

The Festiniog road being the narrowest and also having been the first worked and equipped, Mr. Ellis spent considerable time last summer inspecting this road in company with Mr. C. E. Spooner, the Engineer and Superintendent of the company.

Mr. Ellis has obtained from Mr. Spooner all the official reports, maps and working plans relating to the construction, equipment and working of the 2 feet gauge Festiniog road, and also has caused Mr. Spooner to make original manuscript reports and comparative estimates, showing the immense advantages and economy which may be secured by establishing 2 feet 6 inch road instead of 4 feet 8 1/2 inch or any other broad gauge.

From the inspection of these papers, which can be consulted at Mr. Mat. Ellis's office (No 4 Broad street, New York,) I hastily clip the following results:

TABLE OF COMPARATIVE EARNINGS AND EXPENSES FOR THE HALF YEAR ENDING DEC. 1869.

NAME OF ROAD.	Per cent. work. exp. to gross re- ceipts.	Gross amt. carried per train mile.	Exp. of work. per train mile.
Festiniog & Portmadoc*	44.6	108.29	48.60
London & Northwestern	47.84	58.77	28.76
Great Western.....	48.616	58.495	28.76
East Indian.....	49.4	88.1	48.
North London.....	52.7	58.42	28.86
Metropolitan.....	54.	58.19	28.80

*Which includes all the extraordinary charges—for alteration of road and stocking it.

The regulation speed as per charter, on the 13 miles of the Festiniog road, is 12 miles per hour, over continuous ascending gradient.

Maximum, 1 foot in 68 69-100; minimum, 1 foot in 186; Average, 1 foot in 92. Total ascent, 700 feet.

Sharpest curves, 1 1/2 chains (75) feet in radius. On the Creuzot road (France) they have curves 45 feet in radius on a 2 feet 6 inch gauge.

Mr. C. E. Spooner has made several practical experiments on speed, and has obtained with full safety 35 miles per hour on a straight road, and 20 miles per hour on the sharpest curves.

The locomotives weigh from 8 to 19 tons in steam, the usual carrying load of the Fairlie 19½ ton engine being 90 tons over the average gradient, 1 foot in 92, exclusive of the weight of the engine at an average speed of 15 miles per hour.

The length of trains with this engine is from 900 to 1,200 feet, and often on the road the train has to wind its way on three curves at one time.

TRAFFIC FOR 1869.

	Tons.	Cwt.	Q.
Mineral traffic.....	118,132	7	2
Goods.....	18,600	0	0
Total Gross weight hauled, exclusive of engine.....	341,617	0	0
Number of passengers.....	97,000		

ROLLING STOCK.

Number of locomotives, (3 generally in steam).....	7
Passenger carriages.....	14
Quarryman's carriages.....	32
Goods, coal and lime trucks.....	40
Slate trucks.....	852

Total of rolling stock.....945

These figures speak for themselves to the practical railroad men. They are the result of years of most successful operations, which have returned to the stockholders 29½ per cent of their original investment.

The following statement is from the report for 1869 of the Festiniog Railroad:

	£.	s.	d.
Total receipts for 1869.....	53,676	12	10
Total expenditures.....	15,053	17	10
Net revenue.....	10,622	15	00
Capital of the company.....	36,185	10	00

The object of the company which Mr. Mat. Ellis is now organizing, and which so far may be called "The United States Narrow Gauge Railroad Company," is to build on contract, roads and branch roads to connect mining (especially) or manufacturing districts with main trunk roads throughout the United States. Most of the railroad constructors, locomotive and car builders, as well as rolling mill masters, are to be instructed in this enterprise.

At present the company expect to build branches or feeders to main trunk roads, but I am convinced that ere long many through single roads, 4 feet 8½ inches or broader, will substitute the standard narrow gauge 2 ft. 6 in. for their gauge, and establish a double track, as the road bed would be sufficiently wide, which will afford security to passengers and speed in commercial transactions.

The economy of the construction and equipment of a narrow gauge road is immense when compared with the cost of a road 4 feet 8½ inches. For a single track it is 50 per cent. over an ordinary flat country; but in mountainous or mining districts the proportion increases to 75 per cent. and more. In fact a narrow gauge road can be established and will prove a paying concern in countries so rough that no attempt would ever be made to construct a road of the usual 4 feet 8½ inch gauge.

I am aware that many arguments are now brought against the narrow gauge railroads by people accustomed to a certain routine in railroading. But I close these hasty remarks by saying that within a very short time the standard narrow gauge roads will accomplish a revolution in our railway system of the United States.

It was my good fortune to be appointed in 1867 one of the ten Scientific Commissioners for the United States at the Paris Universal

Exposition, and I had all opportunities to officially ascertain all these facts above mentioned. Since I have the honor of being elected a member of the American Philosophical Society of Philadelphia, I expect to prepare a special paper to be read before this honorable and scientific body on the subject of narrow gauge railroads.

Important Railroad Connection.

SLEEPING CARS ON THE ALBANY AND SUSQUEHANNA RAILROAD.

Through the courtesy of Superintendent H. A. Fonda and General Ticket Agent S. E. Mayo, of the Albany and Susquehanna department of the Delaware and Hudson Canal Company, we had the pleasure, recently, of examining, in company with General Passenger Agent William R. Barr, of the Erie Railroad, and B. F. Popple, Agent of the Erie Passenger Department, three elegant new sleeping or palace coaches just placed upon the Susquehanna road, from the manufactory of Gilbert Bush & Co., of Troy, N. Y.

The cars are of a bright color on the outside, and are made in the "extreme of fashion," (for car builders are continually introducing new fashions,) which, in this connection, is but another name for improvements, to lighten the tedium of travel. The interior of each car is fitted up in black walnut and oak, with crimson plush on the seats. Brussels carpet on the floors, with every convenience for easy and comfortable travel. They are heated by hot water passing along in pipes at the bottom of the car on either side. Each car has ten sections and one stateroom, with water and wash closets on either end. This is certainly a desirable improvement. The entire width of each coach is 11 feet outside, by 55 feet in length. The staterooms are models in their way, with lounges, and tete-a-tete, wash stand, and all complete, with doors on either side leading to the passage way, or into the body of the car proper.

Arrangements have been perfected by which these coaches will run through to Hornellsville, Steuben County, on the Erie road, where passengers will breakfast with the passengers on the Erie express train which left New York at six o'clock the night previous; and then all will proceed westward. These cars commence running this afternoon, being attached to the five o'clock train out. This innovation of sleeping coaches on the Susquehanna road will be hailed with delight by the residents along the entire line, and travelers generally. President Dickson, General Superintendent Young, and Superintendent Fonda, have recently made a thorough inspection of the road, its running stock, etc., and it has been decided to make many additions to the rolling stock and locomotives, in order to keep pace with the increased business of the road, as also to lay new rails on many portions. In the spring new drawing room cars will be placed on the road.

By an arrangement between the Erie Railway and the Albany and Susquehanna Railway Companies, passengers from Buffalo eastward can leave that city at 2:45 P. M., arrive at Hornellsville at 6:05 P. M. for supper, where an elegant sleeping-coach can be secured through to this city without change. By this route the comforts of the broad gauge are obtained.

Lease of the New Jersey Railroads by the Pennsylvania Railroad.

The Pennsylvania Railroad Company have had under consideration for months the leasing of the Camden & Amboy and New Jersey Railroads, with their respective branches, properties, and equipments; and parties on both sides still are seriously considering the proposition, with very little reason to doubt that a satisfactory and mutually advantageous arrangement as the basis of a lease will in time be reached. The purchase of these united companies is a big thing—involving some thirty millions of dollars, more or less—and can not be hurried to a consummation so readily as the purchase of a corner lot. The Newark Advertiser publishes some facts as the inducing cause for the consolidation of the New Jersey roads named under the control of the Pennsylvania Railroad Company, which have been in our possession for some months, but which we did not feel at liberty to make public. As they are now published, however, we give the readers of the Ledger their substance. It states what is true, that there is already a contract between these great corporations, which is intended to be perpetual, in reference to their through business. In that respect their interests are closely connected, but in these days of uncertain tenure under paper contracts, and of conflicting interpretations, neither party can regard the agreement as absolutely binding. In view of this important connection, the New Jersey Company some time ago purchased the valuable property at Hersimus cove, in Jersey City, just north of their present ferry, at a cost of something like \$700,000. Shortly afterward the State resolved to assess them \$500,000 for the grant of its right to the land under water, while it will cost several millions more to reclaim and adapt it to their great Southern and Western business. This latter, being dependent upon the connecting roads beyond that State, the New Jersey company have not deemed it prudent to undertake the enormous outlay without some further hold than they now have upon the business of those connecting roads, and their determination was communicated to the managers of the Pennsylvania Railroad. First, it was that the latter company should take part of the large expenditures at Jersey City, and, eventually, that it should take the New Jersey roads, and make the necessary improvements at Hersimus cove, in Jersey City. Thus the question of leasing came up, and is now the subject of consideration by the "high contracting parties;" and while it may be delayed, as such large movements often are, there is reason to believe that there is enough of merit in it—of advantage to both sides—to induce continued diligent efforts to ultimately carry it through. The Advertiser says: "The ultimatum on the side of the New Jersey companies thus far appears to be that if the Pennsylvania Central will offer to assume the liabilities and guarantee ten per cent. per annum on the stock of the united companies, that the officers of the latter will submit the question to their stockholders." Of course no contract could be made without legislation and the consent of the stockholders. This would require time. Whatever may be done, it is not likely that there will be any sudden changes or surprises. While the facts presented by our Newark contemporary are claimed to be nearly or quite accurate, as we ourselves happen to know they are, that paper says the parties in interest are in no way responsible for what it has published.—*Philadelphia Ledger*.

Power of a State to Tax Railroads.

The Philadelphia *Inquirer* publishes a long report of a decision of Hon. Justice Strong, of the United States Supreme Court, in the case of Wm. Minot, Jr. vs. the Philadelphia, Wilmington & Baltimore Railroad Company *et al.*, delivered in the Circuit Court of the United States, District of Delaware.

The State of Delaware, by an act of its Legislature bearing date April 8, 1869, imposed a certain tax upon the actual cash value of every share of the capital stock of every railroad and canal company incorporated by such State or doing business in it.

The same act also levied an additional and much more onerous tax upon the net earnings or income of such railroad or canal companies.

Also, by the third section, was imposed another tax, which in effect was as follows:

"That every railroad company incorporated by the State and doing business therein should, on the 1st of January in each year thereafter, pay to the State treasurer a tax of \$100 for the use, in the said State of Delaware, of each locomotive belonging in whole or in part to such company, and at any time during the preceding year used by said company within the State of Delaware, and \$25 for the use in the State of each passenger car belonging in whole or in part to such company, and at any time during the preceding year used by said company within the State, and \$10 for the use in the State of each freight car of every description and each truck belonging to such company and at any time during the preceding year used by said company within the State.

Against the payment of each and all of these taxes the complainant, who is a citizen of the State of Massachusetts, and a stockholder of the above-named railroad company, protested, and prayed the Court to enjoin the State of Delaware against levying said taxes and the company from paying them.

In answer to this appeal the learned Judge, after citing innumerable cases to sustain his very able argument, decides that the tax on the capital stock and on the net earnings or income, is clearly legal, but the tax upon the locomotives, passenger and freight cars and trucks is unconstitutional, his honor saying:

"The case, in any view of it, decides that a State can not directly or indirectly tax persons for passing in through or out of it. That is enough for the case I have before me. The Delaware statute of April 6, 1869, does indirectly levy a tax upon both persons and property for transit through the State, into it and out of it. It is therefore, in my opinion, so far in conflict with the Constitution of the United States.

"I shall therefore enjoin against any steps for the assessment, collection or payment of the tax prescribed by the twenty-first section of the act of April 8, 1869, namely, the tax for the use of locomotives, passenger cars, freight cars and trucks, and I shall refuse the injunction prayed for to prevent the collection and payment of the taxes prescribed by the fifteenth section, upon the actual cash value of every share of the company defendant, and I shall also refuse an injunction against the collection and payment of the tax prescribed by the twentieth section upon the net earnings or increase of the company.

SILVER.—The largest "button" ever produced in the silver districts of the United States has been taken out at Georgetown, Colorado. It weighs 1,051 pounds troy, and was extracted from 33 tons of ore.

The Gazette of yesterday says, in relation to the reported leasing of the C. H. & D. R. R.:

The Commercial rubbed its sleepy eyes yesterday, and this morning, with all the solemnity of an owl, announced there is nothing in the story about a lease of the C. H. & D. R. R. Co. by the Pennsylvania Central, except in the imagination of the Gazette. Since the publication of the report, we have had a conversation with one of the parties to the negotiation, and we have to inform the Commercial that there is a good deal in it.

What this city most needs for her commercial prosperity is first class railroad talent in the first place, and a hearty support of it on the part of our merchants and capitalists. There is not now a line of railroad running out of this city that is controlled here, and the frequent complaints made of discriminations in freights against this city we are powerless to prevent. If we had men to take hold of our railroad system, such as the trunk East and West lines of railroads have at their heads, the trade of this city would rapidly increase. See what the President of the Baltimore & Ohio Railroad has done for the city of Baltimore, and not a whit behind is the Pennsylvania Railroad in the interest of the city of Philadelphia. Who is the coming man?

DULUTH & SIOUX CITY RAILROAD.—W. S. Banning, writing from St. Paul to the New York *Tribune*, says that the port of Duluth, when the railroad system of the new North-west is developed, will drain an area of country embracing about 2,000,000 square miles, including the States and territories of Minnesota, Dakota, Montana, Washington, Oregon, Idaho, Wyoming, Nebraska, and portions of Wisconsin, Iowa, Kansas, Colorado, Utah, Nevada, and California. He says that the St. Paul & Sioux City Railroad, now in operation from St. Paul to St. James, a distance of 121 miles, is looking forward to an early junction, *via* Sioux City, with the Union Pacific Railroad company at Columbus, Neb., a distance from St. Paul of 195 miles. He further says that the distance from San Francisco to Chicago is 2,250 miles, and to Duluth, *via* the Sioux City & Lake Superior Railroads, 2,150 miles, making a difference in favor of the Minnesota port of 100 miles.

Tobacco may be classed among the great agricultural products of the world. In 1840, the number of persons in the United States engaged in the culture and manufacture of tobacco was 1,500,000. At the present time there are 50,000 journcymen cigar makers alone in the United States. England derives a revenue of about £27,000,000 from tobacco. In 1868, the estimated crop for Virginia and North Carolina was 4,500 hogheads, of 1,200 pounds each, making 5,000,000 pounds, and in 1869, the estimates for Virginia were 6,000,000.

The quantity of unmanufactured tobacco imported into the United Kingdom last year amounted to 52,588,500 lbs. The analysis shows that 1,466,623 lbs come from the Hanse Towns, 6,350,957 lbs from Holland, 312,817 lbs from Greece, 1,752,587 lbs from Turkey Proper, 1,334,718 lbs from the Philippine Islands, 594,339 lbs from Japan, 242,076 lbs from Cuba, 1,872,765 lbs from New Granada, 37,046,032 lbs from the United States, and 1,645,276 lbs from other countries.

NARROW GAUGE IN PENNSYLVANIA.—We some weeks ago published an account of a railway in Wales of a very narrow gauge, say some two or two and a half feet, which commended itself to favor, as well on account of economy in construction as in cost of equipment and in expense in working. Locomotives and cars were made correspondingly light with construction of road way, and time was somewhat shortened, as compared with that made on the longer and heavier lines of railway. We now observe a statement that narrow gauge railways are becoming popular in Canada, though not so narrow as 2½ feet. Three and a half feet is the narrowest mentioned of the Canada roads. An additional recommendation for the narrow gauge over and above that of economy is, that very much sharper and more frequent curves are permissible without danger to the trains or loss of tractive power by the engine. This makes it especially adapted to a hilly country. The figures of the cost of a 3½ feet road is given at \$5,000 per mile, while that of an ordinary 5½ feet road is given at \$8,100. The cost of equipment is even more largely in favor of the narrow gauge. The first of these narrow gauge roads in the United States is about to be built from Buffalo to Springville. A party of Buffalo capitalists recently went to Canada to make inquiries in regard to the new style railroad, and came back so pleased that they decided to build the line mentioned. Coming nearer home we notice a statement to the effect that a number of gentlemen of Reading, Lebanon, Harrisburg and Allentown, in this State, are making arrangements to build a two feet six inch gauge railroad from Allentown via Reading and Lebanon to Harrisburg, running along the Tulpehocken and Swatara creeks, for the purpose of carrying local freights and passengers. With the narrow gauge, cheaply constructed railway system, once fairly inaugurated in this country, almost every village within ten to fifty miles of a through line of broad gauge railway will have its lateral railroad connecting it with main lines, and all of them, it is believed, may be made productive works from the start, by their facilities of transportation gradually developing the resources of the regions of country through which they pass.—*Philadelphia Ledger*.

The public debt statement for the month of November, shows the total debt outstanding to be \$2,418,673,044.43, and the accumulated interest on the same \$41,457,318.65, giving a total debt, principal and interest, of \$2,460,130,363.08. The amount of coin in the Treasury at the same time, including \$16,582,620 of gold certificates, was \$97,368,577.81, and of currency \$28,453,290.62, giving an aggregate Treasury cash balance of \$125,821,868.43, reducing the debt, less amount in the Treasury, to \$2,334,308,494.65, against \$2,341,784,355.55 on the 1st of November, showing a decrease of debt during the month of \$7,475,866.90, and a decrease since the 1st of March last of \$104,019,982.52.

Some Eastern men have recently purchased 200,000 acres of improved lands in Clay, Harlan and adjoining counties in Kentucky, with a view to colonizing them with English and German immigrants, who are to have farms of 200 acres for each family. Another company has bought 60,000 acres of coal and mineral lands along the Elizabethtown and Paducah Railroad, and are going to establish furnaces and factories.

RAILWAY POPULATIONS—It has been argued that the general increase of population in the northern cities east of Chicago and Cincinnati is caused by the influence of railways which *naturally* draw a large part of the country folks into the excitements of a more *artificial* life—while from Illinois westward to the Pacific, however, the increase of population spreads over town and country; and hence it appears in the apportionment of members of the lower House of Congress upon the new census that the states of the northwest will secure an important balance of power. The southern states, notwithstanding their fearful losses during the war, show an unexpected increase in their white population. Baltimore shows a gain of five per cent. in her population of 1870 compared with 1860, which is due more to the Baltimore and Ohio Railway than to the emancipation of the negroes. Though, since the abolition of slavery, nearly all the cities and towns of the south have made large gains to their fixed population from the blacks of the surrounding country. The excitement of railway travel and the amusements of cities and towns and the chances they offer of a comparatively vagrant sort of existence, have been irresistible to the ignorant and lazy negroes who love fun in a city cellar better than toil on a plantation.

PETROLEUM AS FUEL—SUCCESS AT LAST.—After many trials which have proved futile, the use of petroleum as fuel has at last been brought to perfection, and it is now a fixed fact that crude oil can be used for generating steam in either stationary engines, locomotives, or steamboats. The great obstacle in using this production as fuel has been the clogging up of the tubes used for feeding the flames by a deposit of solid carbonaceous matter, and this difficulty has been the only obstacle to complete success. This has at last been removed, and there is a factory in Philadelphia which is running night and day with no other fuel. No trouble is experienced from the cause above mentioned, and the fires have been running six months continually. There is no smoke from this new fuel, no gas, and no trouble in feeding the furnaces; the engineer acts in his own capacity and that of fireman combined, as he has only to turn a stopcock to increase or diminish his fire. Having no ashes to clean out, and being enabled to keep his engine room in good order at all times, the smell of the burning oil is scarcely perceptible. This material for generating steam is about to be tried here on a large scale, and if entirely satisfactory will prove a great saving in large factories, as petroleum only costs about one-half as much as coal when used as fuel, with a very large saving in labor. It generates steam much more rapidly than coal, and is just as safe to use, there being no danger of its taking fire if managed with ordinary care. It is now thought that this substance can be used on ocean and river steamers; and, if it can, running steamers can be made more profitable than now, as much of the room required for coal can be used for the purpose of stowing cargo, thereby materially increasing the profits of the voyage.—*New York Bulletin.*

According to a recent estimate the population of the globe is 1,228,000,000 souls. Of this number 552,000,000 belong to the Mongolian race; 360,000,000 to the Caucasian; 190,000,000 to the Ethiopian; 170,000,000 to the Malay, and 1,000,000 to the Indo-American race. The annual mortality is over 33,000,000.

MEDICAL PROPERTIES OF EGGS.—We find the following in an exchange: "The white of an egg has proved of late the most efficacious remedy for burns. Seven or eight applications of this substance soothe the pain and effectually exclude the burned parts from the air. This simple remedy seems preferable to collodion, or even cotton. Extraordinary stories are told of a new oil, which is easily made from the yolk of hens' eggs. The eggs are first hoiled hard, and the yolks are then removed, crushed and placed over the fire, where they are carefully stirred until the whole substance is just on the point of catching fire, when the oil separates and may be poured off. One yolk will yield nearly two teaspoonfuls of oil. It is in general use among the colonists of South Russia as a means of curing cuts, bruises and scratches.

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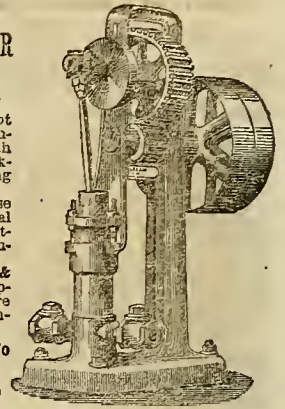
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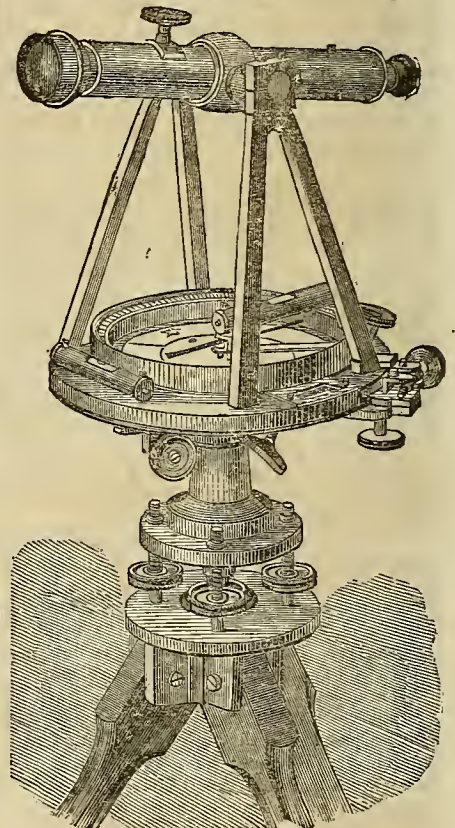
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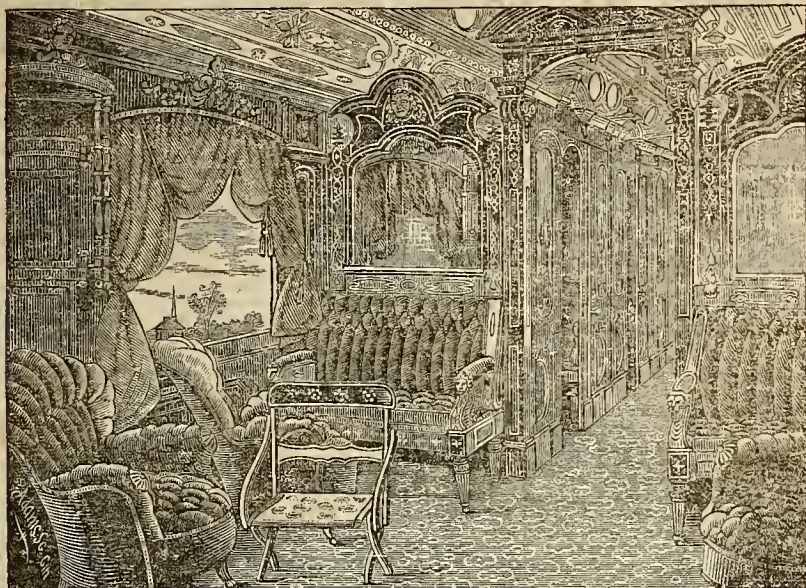
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W. B. SHATTUCK, Gen'l. Pass'r Ag't.

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LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,

North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

Indianapolis and Lafayette Mail.... 7.30 am 12.40 pm

St. Louis and Springfield Express.... 2.40 pm 7.35 am

St. Louis and Springfield Express.... 10.20 pm 3.42 pm

Lawrenceburg Accommodation..... 10.10 am 2.35 pm

Lawrenceburg Accommodation..... 4.70 pm 8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail..... 7.00 am 10.15 am

Chicago Express..... 6.50 pm 9.30 pm

Harrison Accommodation..... 5.30 pm 7.10 am

Through Tickets can be obtained at the Burnet House

Office, corner of Third and Vine; River Office, corner of

Walnut Street and River; and at Depot, corner of Plum

and Pearl Streets. The splendid Passenger Depot of the

I. & C. Railroad is about a mile nearer the business center

of the city than the Depot of any other railroad, and with-

in a few squares of the Postoffice and principal hotels and

Steamboat landings.

J. F. RICHARDSON, Superintendent.

F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

DEPART. ARRIVE.

Eastern Express (Erie Railway). 7:00 A. M. 6:30 P. M.

do do do 9:45 P. M. 7:00 A. M.

Toledo, Detroit & Canada..... 7:15 A. M. 10:25 P. M.

do do do 6:30 P. M. 7:00 A. M.

Lima Fort Wayne & Chicago..... 7:15 A. M. 10:25 P. M.

do do do 2:30 P. M. 5:40 P. M.

do do do 6:30 P. M. 7:30 A. M.

Sandusky, Cleveland & Buffalo..... 7:15 A. M. 5:40 P. M.

Springfield Accommodation..... 2:30 P. M. 10:20 A. M.

Sandusky, Cleveland & Buffalo..... 6:30 P. M. 10:20 A. M.

Muncie & Indianapolis..... 7:15 A. M. 10:25 P. M.

do do do 5:00 P. M. 1:20 P. M.

Hamilton, Eaton & Richmond..... 7:15 A. M. 10:25 P. M.

do do do 5:00 P. M. 10:20 A. M.

Hamilton Accommodation..... 9:30 A. M. 8:05 A. M.

do do do 6:30 A. M.

Trains run **SEVEN MINUTES FASTER** than Cincinnati time.

For all information and through tickets, please apply at

the old office, south-east corner of Broadway and Front; Burnet

House Office, corner Vine and Baker streets, and at the

respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STREPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers

The Old And Reliable Route.

Through to Pittsburgh without Change.

The **PITTSBURG, FORT WAYNE & CHICAGO RAIL-**

ROAD, in connection with the Cincinnati, Hamilton &

Dayton, and Little Miami Railroads, still continue to transport

produce and merchandise between Cincinnati and Pittsburgh, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent.

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A.

M. Daily (except Sundays). Stops regularly at

Walton, Elliston, Sparta, Liberty, Worthville, Camp-

bellsburg, Lagrange, Pewee Valley, Anchorage; when

flagged, at South Covington, Maurice, Independence, Bank

Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur,

Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves

Cincinnati at 1.20 P. M. Daily (except

Sundays). Stops only at Walton, Worthville, and La-

grange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M.

Daily (except Sundays). Stops regularly

at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville,

Campbellsburg, Sulphur, Lagrange, Pewee Valley, Anchor-

age, and when flagged, at South Covington, Maurice, Inde-

pendence, Bank Lick, Verona, Zion, Eagle, Carrollton,

Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cin-

cinnati at 11.15 P. M. Daily (except

Saturdays). Stops regularly at Worthville, Lagrange, and

when flagged, at Walton, Verona, Elliston, Glencoe, Sparta,

Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee

Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington

Trains, arriving at Frankfort at 6.14 P. M., Lexington

7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains

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HENRY STEEFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty

st., connects at Hampton Junction with the Dela-

ware, Lackawanna, and Western Railroad, and at Easton

with the Lehigh Valley Railroad, and its connections,

forming a direct line to Pittsburg and the West, without

change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago,

Cincinnati, St. Louis, etc., with but one change of cars.

Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as

follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk,

Williamsport, Wilkesbarre, Mahoney City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg,

Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch

Chunk, Wilkesbarre, Reading, Columbia, Lancaster,

Lehigh, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk

and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal

stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and

Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays.)

for Easton, Allentown, Harrisburg, and the West without

change of cars to Cincinnati or Chicago, and but one

change to St. Louis. Connects at Harrisburg for Erie and

the Oil Regions. Connects at Junction for Stroudsburg,

Water Gap, Scranton, &c. Connects at Phillipsburg for

Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Satur-

days.) for Easton, Bethlehem, Allentown, Reading, Har-

risburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars

to Pittsburg and Chicago. Connects at Junction with

Delaware, Lackawanna and Western Railroad for all sta-

tions to Scranton. This train will be run to Easton on

Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton

Allentown, Reading, Harrisburg, Pittsburg, and the West

—connects at Harrisburg with train for Williamsport, Erie

&c.

Sleeping cars through from Jersey City to Pittsburg

every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15

8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00

3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25,

7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the

Central Railroad of New Jersey, foot of Liberty st., N. Y.;

at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at

No. 10 Greenwich st., and at the principal depots.

R. E. RICKER, Superintendent.

J. A. LINNIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
A. J. HODDER, - - - - - }

CINCINNATI, THURSDAY, DECEMBER 29, 1870.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING.

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

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Railroad Needs of Cincinnati.

It was a necessity and a matter of course, that the first railroads made from Cincinnati should be those to the Atlantic ports. There was the money; there was the foreign trade; and there was the great market for Western produce. It was, of course, we say, that roads should be made to New York first; and as New York, Boston, and Philadelphia were to be (and have been) immense gainers, the capital was easily obtained. In this manner things went on for years, the first practical railroads (the Mad River and Little Miami) being made about 1812-3, and the whole system, as it now exists, being finished by 1863. This system was almost exclusively a New York system, and made and conducted for the benefit of New York. The results may be seen in the rapid growth of New York city. The following two lines will show the growth of New York from 1840 to 1870, viz.:

New York population in 1840, 312,000

" " " 1870, 927,000

Some one will say this was not caused by railroads. Not for it was the result of the rapid growth of the great West; but, without these railroads through Ohio, New York would not have been the market for Western products. New Orleans would have been, as it had been in all the previous period. Ohio was the great and only gateway from the Eastern Atlantic to the West. New York capital flowed out, and the railroads were made; but they were all made down to the center of Cincinnati for the benefit of New

York, some results of which we shall presently see.

Again, some one will point to the New York canals as the cause of the great commerce of New York with the West. Let us see: The Erie canal was begun in 1825, and finished about 1832. The New York and Ohio canals were the great commercial outlets in that day for internal commerce. In 1830 New York had 200,000 inhabitants, and in 1845 had 370,000. This was rapid growth, but slow compared with what the next twenty years produced. It is the railroad era which has produced such prodigious results in our great cities.

Again, it will be said that the Pennsylvania roads competed. Undoubtedly; but Philadelphia, where Pennsylvania roads centered, is on the way to New York, and, exclusive of the local coal and iron trade, the commerce of the Pennsylvania roads was for the benefit of New York.

Such was the state of things on the completion of the Grand Trunk lines. What was the result in regard to Cincinnati? Just what people are now for the first time beginning to see:—All the nicer lines of railroad round Cincinnati are owned by Eastern capitalists; all their business is conducted in reference to Eastern interests; the prices of freight are fixed without any regard to the interests of Cincinnati; and combinations are made among all the Eastern trunk lines to control and regulate the entire railroad trade of the West. At this moment there is a railroad convention sitting, whose object is to throw all the lines connecting New York and the West into a great pool, and, by consequence, to control absolutely the price of freight, and all the interests of Western commerce! There is nothing to prevent this if the parties can agree. In this case, what can Cincinnati do? She does not own or control any of these roads. Even the Little Miami, at her very doors, is owned by a foreign corporation, entirely foreign to her interests. What is to be done? It is evident there is but one mode—one possible condition of things—in which she can make herself independent of New York monopolies. This is by rearing up *competition in the South*. This will not merely make competing roads, but competing cities. New Orleans is beginning to regain its strength by railroads into the great fields of Western productions, and it will eventually become a much greater outlet of Cincinnati than it is now. In consequence of there being no mountains or obstructions in the South, a railroad from Cincinnati to New Orleans can be made nearly or quite as short as one to New York, viz.: 700 miles. Gradually New Orleans will resume its position as the real capital of the whole lower Mississippi. It will therefore become, to some extent, an available competition with New York monopolists. But this will not do to depend upon.

The hot climate of New Orleans will not do, in many months of the year, for the exportation of cereal products. We must, therefore,—or be assured Cincinnati can not grow fast,—have other ports in the Southern Atlantic. The schemes for this object have been often discussed in the columns of the RECORD; but a more financial view of Southern competition may enable us to see the position more clearly:

First.—We notice the Baltimore road has not joined the New York monopoly, and from its position we may be sure it will not. Nevertheless, Baltimore is too far East, and too much connected with New York and Philadelphia to be largely available as a competitor; but we are glad to see that the Baltimore road, as a grand trunk to Cincinnati, will, in a few days, be entirely finished. The two links necessary to this were the eight miles of *entrance* into Cincinnati and the bridge over the Ohio at Parkersburg; both of which will be finished in a short time. The business on that road is already increasing, and, we may be assured, will soon be doubled. It will not be long before the New York roads will feel the effects of this great improvement.

Secondly.—The next competing line—and it will be a very important one—will be the Chesapeake and Ohio road. This being yet more removed from New York will never be brought into the ring. But it yet remains to be seen whether Norfolk or Richmond can be made into large exporting ports. Norfolk is one of the three or four great natural outlets of commerce in this country; but it requires capital, enterprise, and health to make a great export port; and all of these are, as yet, very uncertain at Norfolk. All these are to be had, so we are told, at Newport News.

Thirdly.—There remains the last and the really great Southern competitor and Cincinnati ally against New York monopolies, and this is the SOUTHERN ROAD. We never will say we have done all we can. Not so. There are two things to be done yet. We have yet to make an earnest and honest appeal to the Kentucky Legislature. This may succeed; but if it fails, we must *put our own shoulders to the wheel*; and if that be done, we can tell the people of Southern and Western Kentucky the road will not be made on a route to suit their interests.

The South has an immense area of new lands yet untouched by the plow, and from this soil will arise a wealth, grandeur and power, new to those States. The amount of Government lands in acres in the cotton States is put down as follows: Alabama still has 6,582,996; Mississippi, 4,822,069; Louisiana, 6,582,841; Arkansas, 11,573,432; Florida, 17,422,438; while Texas has over 70,000,000 belonging to herself. The homestead and pre-emption laws of the United States afford an easy means to the immigrant of becoming at once a thrifty farmer in any of the states where the public lands are still unsold.—*St. Louis Journal of Commerce.*

The Short Line Again.

The article in the *Gazette* of the 27th inst. headed "The so called Short Line Railroad Scheme Dissected," and signed "A late Stockholder of the C. C & I R. R. Co.," is a rehash of the stale and worn shifts and arguments of two railroads (the C. H. & D. and the Little Miami) used for the past 18 years, through hireling advocates and a pensioned press, to defeat an improvement in which Cincinnati and the valley of Mill Creek are more deeply interested than any, nay perhaps all others, which have a bearing on her outgrowth and prosperity. During this long period these two roads have absolutely held this city by the throat, choking her or releasing their grip only as their supposed interests dictated, dwarfing her proportions, and actually forcing the business which naturally centers here to find its way around the city, and not to it and through it. These roads resolved to maintain their monopoly and control of the business avenues to the city totally regardless of the cost to our interests.

Eighteen years ago there were at least ten railroads pointing towards this city from the west, north, and east, to-wit: the Harrison & Chicago (called Smith's road); the Four Mile Valley; the Junction; the Eaton, Hamilton & Cincinnati; the Twin Creek & Germantown; the Dayton Short Line; the Lebanon & Xenia; the Wilmington & Zanesville; the Marietta & Cincinnati; and the Hillsborough & Cincinnati; most or all of which would have been completed to this point had suitable facilities of entrance to the city been offered them. This great avenue to the center of business, the tunnel, which would have given the necessary accommodation to all, has not been completed; and what is the result? the Harrison & Chicago, the Four Mile Valley, the Twin Creek & Germantown, the Dayton Short Line, and the Lebanon & Xenia, have been actually choked out of existence for the want of these facilities of ingress and egress to the city; while the other five, to-wit: the Junction, the Eaton & Hamilton, the Wilmington & Zanesville, the Marietta & Cincinnati, and the Hillsborough & Cincinnati, have struggled through a sickly existence, some of them even yet but partially completed, and most of them passing into other hands, by the process of capitalization, at perhaps a title of their original cost.

With suitable facilities of entrance and provision for the business of these roads in the heart of the city, the use of which were secured on the completion of the tunnel, these roads, or most of them, would have been completed at a cost of perhaps fifty millions of dollars, (twenty millions and upwards were actually expended and most of it wrenched from the original stockholders through legal process,) for the want of a terminus in the city. How this was done will doubtless be

remembered by many whose investments in these roads have been thus swept from them; what the exactions of these stem lines have been upon them; how they discriminated against them, and afforded no facilities, only as they added to their own profits and weakened the dependent companies. It is said that the Marietta company paid their toll at times to the Miami company (\$60,000 per annum) by borrowing from their employes and starving their labor for the time, and the Wilmington & Zanesville reports show that they delivered tens of thousands of tons of through freight to the Miami without a single ton in return, although they had through connections at their eastern end.

Is it any wonder that these roads were forced into bankruptcy and capitalization? The same coercive processes were adopted by the Hamilton & Dayton towards the roads dependent upon it for entrance into the city, as the histories of the Dayton & Michigan and Eaton & Hamilton testify. Weakened and crippled by exactions which they could not meet, they fell a prey to the voracious cormorant; the Dayton & Michigan actually paying a million of dollars in watered stock to the C. H. & D. for the privilege of being swallowed up! The question is pertinent here, what peculiar advantage has either the Little Miami or the Hamilton & Dayton roads over other roads of the country? do they traverse a better country? are they more economically managed? has their cost of construction been less? I ask the question why these roads are largely dividend paying, while others built at less cost, more economically managed, and traversing regions which furnish at least equal traffic, are unremunerative? Is there, can there be, any other reason than the power which these companies have over rival lines by means of the monopoly which they enjoy of exclusive control of the avenues into the city?

But besides and beyond the power to break down contesting lines, which, if completed, would have given us free competition in the business of transportation, how has this monopoly operated on our interests in another direction? We are a central city, with all the elements for outspread and development within and around us—health, subsistence, raw material, skilled labor, enterprise, capital, and yet with all these we can not grow—why? There is about 2,500 acres of area between the hills and the river; this is all covered, saving about 200 acres of Mill Creek bottom subject to submersion, and the value of the land has passed, in consequence of this restricted surface, beyond its use for manufacturing purposes, and the labor is illy provided with shelter even at exorbitant rates.

The writer of this came here when the population numbered less than 9,000, and this was less than fifty years ago. We now have 218,000, and still we grow. We have

yet 200 acres to be reclaimed from 20 feet of submersion, affording sites for 2,000 houses, or accommodation for 20,000 people as we now build, at our rates of increase. How long before this area is covered, and then where shall we go? The surrounding hills serve well for the domicile, but can our factories go there? will the coal, the iron, the salt, &c., bear the haul, and can our commerce be conducted four hundred feet above the present city level? Cast your mind forward fifty years. With suitable facilities for outspread, is it extravagant to say that we will number a million, and a hundred years hence have 2,000,000? Where do you find room for this number?—not here. Mill Creek Valley contains an area of upwards of 20,000 acres. The ground is sufficiently undulating for thorough drainage, and Mill Creek could be formed into a sewer to be slushed by the waters of the great Miami, thus preserving the public health. Where on this continent can you find a tract of land more suitable for a great city? The hills north of the city separate us from this valley. It is true there is a narrow strip along the creek between this and Carthage, but it is already traversed by two railroads, one canal and two or three common roads, and is now being compactly built. This strip of land is even now intersected by numerous thronged streets and avenues, requiring trains on railroads to be confined to low speed by city ordinances, and likely to be still further reduced. Can the thoroughfares along this narrow strip afford the necessary facilities of passage between this northern city that is to be and the present one?

I predict that in 50 years, perhaps in less, the great city of Cincinnati with its work shops will stand in Mill Creek valley, and that the one we now inhabit will be but the sales-room; her great warehouses, her offices, her banks, etc., will be here. In a word, it will be to us then what New York now is from Canal street to the Battery, to the present surroundings of that city. If then we continue to grow, and the present avenues are unsuited or inadequate to allow of passage in reasonable time for the transit between the points, is not this tunnel then a necessity? With the development which I predict, Mill Creek will be webbed over with trams and street railways. Already I hear of several to be constructed during the coming season, to connect with the avenue road, but the low speed to which they are confined is found to be a serious obstacle. The time by the street cars to Brighton is 45 minutes, thence to points north by horse power will be perhaps 6 miles per hour.

The distance through the city can not be much reduced by steam, for even now, at the present low rate, many accidents occur. The tunnel could be run at 20 miles per hour with safety, for the track is isolated and crosses no avenue for the first four miles, the point at

which the street lines would probably connect, and besides by radiating from this point, an actual saving of three miles of distance in most directions would be made. I have not, as I designed to do, replied to "A Late Stockholder," I may do this in another article, this is long enough.

Railroad Earnings.

It will be remembered that the year 1869 was a favorable one for railroad traffic, and that the gross earnings of the leading and well managed roads rose to a height that was very encouraging to the parties interested in them, and that gave confidence in railroad investments.

By a comparison of the earnings of ten important lines for the eleven months from January 1st to December 1st, it will be found, however, that there has been in nearly every instance a most satisfactory and healthy advance in receipts during 1870 over that of the year previous. And it is believed that, if the earnings of the present month could be added, the exhibit would be even more gratifying, as up to the first of this month there has been no unusual or extraordinary movements of freights. The accumulations of grain and pork are still at the first principal gathering points, and will not be likely to go forward in any great quantities until the latter part of the month or early in the coming year. If these products, which are the natural business of this year, had moved this month, with the high rates that now prevail, the receipts of these roads would be very considerably increased; perhaps showing a per centum in advance of the same month in any prior year, after making due allowance for the natural increase of such business by the growth and development of the country through which these lines pass.

It will be noticed that where a decrease in the earnings is shown by our table, that it is not important, and we have no doubt this can be accounted for by local disturbances:

EARNINGS FROM JANUARY 1 TO DECEMBER 1.				
	1870.	1869.	Inc.	Dec
Central Pacific.....	\$7,709,107	\$5,195,599	2,513,508	.....
Chicago & Alton.....	4,425,735	4,357,723	68,002	.....
Cleveland, Columbus				
Cin. & Ind'p's.....	2,995,264	2,871,904	123,360	.....
Illinois Central.....	8,096,260	8,125,122	.....	23,862
Marietta & Cincinnati	1,277,495	1,281,653	.....	4,158
Milwaukee & St. Paul	7,594,669	6,651,946	938,723	.....
North Missouri.....	2,577,763	1,821,257	756,506	.....
Ohio & Mississippi.....	2,837,664	2,660,652	177,012	.....
Pacific of Missouri.....	3,208,569	2,913,014	295,555	.....
Tol., Wab. & West'n	4,140,115	3,818,052	322,113	.....
Total.....	\$44,764,701	\$39,696,922	\$5,100,776	\$33,020

There is one thing pretty certain, and that our sagacious financiers seem to know thoroughly, and that is, nothing like a permanent check is likely to be given to the increase of railroad earnings. Temporary interferences may occur, but even these, under good management, will not materially affect these receipts, as the great law of compensation will make up the losses of one season by the gains of another.

The natural growth of the country—the prosperity that railways themselves produce—are their sure supporters; and now that the importance of local traffic is appreciated, and railway managers are turning their attention to its development, the earnings of railways will be relieved from the contingencies they are now subject to, and be counted upon with a degree of certainty that will make their stock and securities sought for permanent investment.

On the whole, we may say that there has been a remarkable railroad prosperity during the past year. The management of the leading lines has been considerably improved. Economies have been introduced that promise to work desirable reforms. Roads that for years—indeed since their completion—have been of minor importance, and were without the least value to their stockholders, have been absorbed by larger enterprises and rendered valuable, or have come under a more vigorous and enlightened management and been relieved of their embarrassments, and made among the productive interests of the country.

What is wanted in railway interests just now, is an energetic, intelligent, and honest direction. There are few roads well located but that will pay if thus controlled; whereas, the best of such enterprises can not gather money enough to sustain the blunders and iniquities of poor or dishonest management and pay their liabilities, much less dividends upon their cost.

PERSONAL.—We were greatly pleased the other day to have introduced to us by letter from a friend in the West, CAPT. E. G. TURPIN, now stopping at the Gibson House. The object of CAPT. TURPIN's visit to this city is to add some additional subscribers to a Company being formed in Chicago, who contemplate making a settlement on the rich mineral and agricultural lands of the Little Colorado, west of the Zuni pueblos, and on the route of the proposed extension of the Kansas Pacific Railroad. CAPT. TURPIN is intelligent, speaks Spanish fluently, (which will be of great service) and is evidently possessed of the qualities requisite to fit him for a leader in just such an expedition as is contemplated. May success attend them, and their hopes be realized.

As a fair and impartial description of the country to which the party intend to emigrate, we give the following from the Diary of F. X. Auhery, of his journey through Arizona in 1853:—

"Aug 27th. We met Indians to-day, who, I think, are not Apaches Fontos, as they do not speak any Spanish, and refuse to answer our questions. We obtained from them over fifteen hundred dollars' worth of gold for a few old articles of clothing. The Indians use gold bullets for their guns. They are of different sizes, and each Indian has a pouch of them. We saw an Indian load his gun with

one large and three small gold bullets to shoot a rabbit. They proposed exchanging them for lead, but I preferred trading other articles.

"Aug. 28th. Traveled ten miles east over a good country; met with more Indians and traded for some horse meat, by giving articles of clothing in exchange. We traded also for a few hundred dollars' worth of gold. To-day a mule broke down, and an Indian gave me for it a lump of gold weighing a pound and a half less one ounce.

"The Indians are so numerous they would destroy the party if we allowed them the least chance. But we are very vigilant, and select camps on elevated places, consequently we are unable to make any examinations for gold in the sands of the country. The Indians call themselves *Belenois*.

"Aug. 29th. Traveled some twenty miles in an eastern direction; the country quite level, and the land good, with plenty of grass and water.

"Aug. 30th. Traveled to-day about fifteen miles east, over a country a little broken. Water and grass abundant.

"Aug. 31st. Moved about twelve miles north of east, over a country similar to that of yesterday. Found water, grass and pine timber.

"September 1st. Traveled fifteen miles over a country a little broken, and well supplied with water, grass and timber. The soil was good.

"Sept. 2d. Traveled the same distance north-east to the Sierra Blanca. Followed Indian trails all day, and found grass, water and pine timber in great abundance; and most of the soil is of a superior quality.

"Sept. 3d. Pursuing the same course, we traveled some fifteen miles among the same mountains. To day we passed through valleys of good soil, and we found the pine timber in greater abundance than yesterday. The trees are generally from two and a half to five feet in diameter, and over two hundred feet high. We have seen timber enough to-day to make a railroad from the Eastern States to the Pacific. The passes through this mountain are level, and can be traveled by wagons without any difficulty whatever.

"Sep. 4th. Made twenty-five miles north-east, crossing the Colorado Chiquito after traveling about two miles. The land is level and good, and water and wood are plenty.

"Sep. 5th. Made twenty miles east-north-east, and got out of the mountains after traveling five miles; struck the prairie, where we found good soil, grass and water.

"Sep. 6th. Continuing north-east over a good and level country for twenty five miles, we reached the Indian town or pueblo of Zuni, where we met with a hospitable and civilized population, from whom we obtained an abundance of good provisions, over which we greatly rejoiced."

Those who love the juicy steak, and those who view the Texas steer with distant respect, will be interested to learn that 125,000 Texas cattle have gone East this year over the Kansas railroads, against 41,778 in 1869. Kansas is pushing its system of railways southward, and the Texas cattle traders expect soon to be able to ship from 500,000 to 800,000 live heaves per year.

According to the census returns, the population of San Francisco is 150,301, of whom 12,017 are Chinese. The property valuation is \$260,000,000, an increase of 600 per cent.

The Cincinnati and Newport Bridge.

The following is the report of the Corps of Army Engineers ordered to inspect the bridges across the Ohio river, upon the Cincinnati and Newport structure. We suppose this will be final with the Bridge Company, and that they will proceed at once to comply with the specifications suggested:

"We are unanimous in the opinion that this bridge, as being constructed, is a serious obstacle to the free navigation of the Ohio river, and that it imperatively calls upon Congress to exercise its specially reserved rights for its modification." The Board holds that the alternative provision of the law for a bridge with a pivot draw, giving two clear openings of 100 feet, unfortunately made no stipulation about the height above the highest water, of bridges using draws, and this has since become a very serious omission, on account of its operation being extended so as to include Cincinnati. Seventy feet above the lowest water is at least 25 feet above the highest water at Steubenville, but only 7½ feet at Cincinnati. The board considers the Congressional debate on the bill authorizing the bridge as showing that the bill was compromised between the navigation and bridge interests in regard to the length of the span. Several gentlemen who voted for the bill stated that it was the express understanding that that bridge was not to be of less height than the existing suspension bridge, nor less than forty feet above the highest water. The provisions for a high bridge under the law would have been satisfactory. The board says the facts show that the compromise, as understood by those who made it, has not been complied with in building this bridge on the drawbridge plan, and that it lacks the essential quality of a compromise in not being understood alike by those who are said to have made it, and hence it can not be made a reason for Congress refraining from exercising its reserved right to compel a modification of the bridge itself. The government of the United States is the custodian of the public rights in these great navigable streams, and though the parties interested in special branches of trade may consent to certain designs of bridges, the government alone, comprehending all the interests, should be the final judge in such matters. The board asserts that long spans of four hundred feet or upward are not impracticable at reasonable expense, and when properly apportioned are much more stable and safe than smaller spans. High piers, proportionably widened and lengthened, are just as firm as low ones. These points are illustrated in the case of the Louisville bridge, which the report designates as an admissible structure that overcomes all objections that can be made against high bridges. The piers of the Newport bridge are reported as making an angle of two degrees with the current, and thus reducing the width of the span to 390 feet, or less than the law requires. The foundations of the piers are reported as not deep enough. The curved portion of the bridge is severely criticised, first, because it necessitated two spans, where without it one would have been sufficient, and because it led to placing the wide span, which the law requires next to the channel span, on the Newport instead of the Cincinnati side.

The principal modifications recommended are the main span to be raised 30 feet higher than now designed, thus giving a clear headway of 100½ feet above the lowest water and

38½ feet above the highest, the main 400 feet span to be kept, and all the other spans to be raised so as to make deck bridges. The estimate of the amount necessary to make the required changes is \$288,695, provided the changes are made before the 400 feet span is erected. The total cost of the bridge when remodeled will be \$1,109,089.

In conclusion, the board gives its opinion of the legislation required. It recommends that Congress, for its own protection, ought now to finally dispose of the subject in such a way that the river interests will no longer be threatened with destruction, and that the bridge companies may no longer hope for special favors, but be compelled to work on a well understood and digested plan. The capabilities of engineering and the resources of the railroad companies are ample to meet any just requirements of navigation. The board says if Congress should compel the alteration of the Newport and Cincinnati Bridge, as recommended, and should repeal or modify the law authorizing a bridge at Paducah, that this action would be acceptable to all river interests. A general law is recommended providing that hereafter all bridges to be built across the Ohio river shall have at least one span giving a clear opening of 400 feet wide, measured at right angles to the stream, and that the headway under this span shall not be less than 100 feet from lowest water, and 40 from highest. These two requirements about height should be applied to all places. In addition to other modifications suggested, all the bridges below Cincinnati should have a draw span giving a clear passage way of 160 feet wide, placed so as to be available in the highest stages of the river for the use of the largest packet steamers that can not at that time pass under a bridge.

The Connecting Track of L., C. and L. Railroad and the L. and N. Railroad—The Plan of the Route and the Progress Made.

We condense the following from an article upon this improvement in the "Courier Journal" of the 19th inst.:

THE CHARACTER OF THE WORK.

The connection between the Frankfort and Nashville lines of railroad is now so nearly finished that a description of the progress and of the work as done will be of especial interest to our readers. The work on the grade has, owing to the very favorable weather of the fall, been very rapid, the grading being, with one exception, over a contested lot, ready for the laying of the rails. This latter work will be completed probably within the next two weeks. This track, however, is but a temporary one, used only for construction, and the connection can go into active operation immediately only by special permission of the City Council. It will be remembered that it was made imperative by the Council, in granting the right of way, that the gauge should be changed, thus creating the necessity of breaking bulk at this point. This has not been done as yet on the Short Line road, and the track, as purposed along the connection, is that used by both the Nashville and Short-Line roads.

The line starts from the shops of the Short-Line, above the head of Jefferson street, and thence to Broadway, running thus far almost parallel with the course of Beargrass creek. At this terminus it is intended that the transfer of freight shall be effected. The building

when completed will be very capacious, its dimensions being about 300 by 40 feet. From the crossing to the bridge over Beargrass, near the head of Broadway and on the Newbury road, it is about 2,000 feet. Near the bridge across the Bardstown pike a very fine piece of trestle work over Beargrass creek has been just completed, with an average height of fifteen feet, and some one hundred yards in length.

The road crosses the Bardstown pike just south of the bridge, and takes its course nearly due southeast to the Broadway crossing. Some 200 feet before it reaches this point, a temporary trestle-work commences, continuing until it reaches Broadway. The track had been laid only to this point Saturday. At the beginning of this trestle-work, the grade of the road rises in about five feet to the 200, bringing it to the grade of Broadway. The present intention is to cross the street at its own level. Should it be made finally necessary to cross the street at the proper grade of the connection, this trestle-work and consequent rise will be done away with; a cut of seven feet will be necessary across Broadway, and a bridge of eleven feet above the level of the street be rendered imperative. In this event, a fill on each side of the bridge will be made, extending to Underhill street on the one side, and probably to Campbell on the other.

The road crosses Broadway about 100 feet east of the Broadway bridge and Beargrass again some 300 feet north of the Broadway bridge. About a half mile beyond the crossing is the deepest cut of the route, 200 feet in length, and with an average depth of 10 feet. A foot above the grade a thin limestone ledge was struck, 18 inches wide, that was necessary to be removed in its entirety. Beyond this cut again is a six feet fill, with a length of between 125 and 150 yards.

The fine bridge of the road crosses Beargrass creek a mile and a quarter from the Short-Line terminus. The bridge was commenced about the 15th ultimo, and will be completed within the week. There are two abutments and a span of thirty feet. The bridge is fifteen feet high, and is a very solid, massive, and handsome structure. The base courses are of limestone—brought from the quarries of the work-house road—measuring 26 feet by 14. The stems measure 9 by 29 feet. The stone abutments of the bridge are of the best quality, laid in courses of seventeen to twenty-four inches, bedded in cement, and the works reflects much credit on the contractor, who has spared no expense in making this a very superior job of its class of masonry. One abutment is completed, and the bridge, as stated above, will be ready for the rails probably by Wednesday night. Beyond this bridge is another heavy cut of 1,200 yards in length, and with an average depth of five feet. From this point the road runs, with but few, and those unimportant, features, through Germantown, crossing Shelby street at the old fort, Preston at a point nearly two miles east of Broadway, and meets the Nashville road a little over a mile and a half south of the House of Refuge. The grading has been entirely finished, with the one exception of the crossing of the contested lot south of the Germantown bridge, and, with the track laid by the close of week after next, the road could be put into active operation by that time.

The contract work of the connection has been done by Mr. M. J. McNamara, under the general direction, we presume, of the Chief Engineer of the Short Line road, Mr. G. R.

Tallcott. It is certainly a handsome, and, apparently, a thorough piece of work, and reflects much credit upon both its theoretical and practical authors.

Our Coal Fields and the Future of Manufactures

Among the latest discoveries of coal in this country is a wonderful deposit in the territory of Wyoming, lying immediately west of Nebraska, and comprising a portion of the Rocky Mountains. This coal belt extends along the Pacific Railroad a distance of three hundred miles. The quality is said to fully equal Lehigh coal, yielding ten thousand feet of gas to the ton. The workings at various places show the vein to be 30 to 40 feet deep. A company is taking out 3,000 tons per month, and the article is selling at the low price of seventy-five cents to one dollar per ton. The Central Pacific Railroad Co. are using it on the eastern end of their road. Prof. Hayden, United States Geologist, who has lately returned from Wyoming, where he has been prosecuting his geological investigations, speaks in high terms of that territory. Not only does it contain immense coal beds, but iron ores exist in great abundance, while a careful test of the soil on the hills and valleys shows that there is no part of the territory that would not yield, by irrigation, forty bushels of wheat per acre.

The vast and inexhaustible coal fields of the United States are among the most important forms of our latent wealth. These fields have recently been estimated at two hundred thousand square miles, and, though stupendous, it is evident, from the frequent development of new sources, that the estimate is a moderate one. The importance of this incomparable store of concentrated mechanical force will be realized only in connection with the immense extent of fertile land within our national limits, which are capable of sustaining an immense manufacturing as well as agricultural population. It adds greatly to the significance of the facts that the rich land and the rich mines are to so large an extent in close proximity. In the great coal fields of Illinois, Indiana, and Kentucky, scores of thousands of square miles of exuberantly productive land overlie a weight of coal exceeding by many fold all that of the British Isles, of excellent quality and easily procured. Here amidst almost boundless corn and wheat fields a system of manufacturing is certain to arise, such as the world has never yet seen. In the Missouri and Arkansas basin, as well as in Pennsylvania, Maryland, and Virginia, immense quantities of coal are associated with lands of great fertility. The period when great manufacturing enterprises shall be established in these States depends mainly upon the States themselves. Once established in such prolific regions, manufacturing industries will not, like those of other manufacturing countries, be in a state of dependence upon distant and foreign countries for food supplies, England now being obliged to supplement her natural deficiencies by the importation of food for her workers to the amount of four or five hundred millions of dollars per annum. Having in abundance the power, food, iron, copper, lead, cotton, the ability to produce an adequate supply of wool, and an unlimited scope for population, then, there is nothing to prevent the United States from becoming, in due time, the foremost manufacturing nation on the face of the globe. Other countries having the start of us, we shall

have to make many sacrifices before we can take our proper rank; but with steady advances in favor of those less elementary occupations that at once characterize and largely constitute civilization will anon bring ample recompense.—*Economist*

Cheap Freight Transportation by Rail.

A few years ago the question of reform in the management of our American railways, by securing the general adoption of a system that should provide for the cheap transportation of freights, and, while encouraging every form of industrial enterprise, greatly facilitate the development of the richly productive but now practically inaccessible districts of the South and West, received much attention, and was widely discussed in legislative bodies and through the columns of the newspaper press. To facilitate the introduction of these reforms, an association known as the "Cheap Freight Railway League" was organized, and many of our leading capitalists and practical statesmen were identified with the movement. So general was the acceptance of the plan of railway reform proposed by the League that it seemed to assume a national character, and as many as seven bills were presented to Congress proposing the establishment of as many different through railways, embracing in the line of their projected routes many of the most productive and populous sections of the interior. One of the schemes provided the necessary facilities of cheap freight and transportation for Texas and Kansas; another for the intervening country between some central point on the Mississippi and the nearest shipping port on the Atlantic coast; a third included the anthracite and bituminous regions of Pennsylvania and the New Jersey shore; a fourth provided for Georgia and the adjoining Gulf States; a fifth for Virginia and the Carolinas; a sixth for Alabama and Northern Florida; and a seventh for the wheat growing plains of the Northwest. This system of trunk roads, exclusive of the branches and connections to be built for local accommodation, was to have required about four thousand miles of double track, which, at an average cost of \$50,000 per mile, would represent an invested capital of some two hundred millions of dollars. This money was to have been obtained from the sale of actual shares, and ample precautions were to be taken to prevent the possibility of any of those "irregular" transactions which has given the stock of so many important railroad enterprises a doubtful reputation in the market.

What has become of this League and of its seven bills in Congress, and why has the plan of railway reform which it proposed been allowed to quietly disappear from public notice? The net work of roads that now supplies such excellent facilities for quick travel in so many directions, is only partially adapted to the wants of the country. From many of the sections thus connected the freights to be conveyed consist mainly in the natural products of the soil, agricultural and mineral, which, produced at comparatively small cost, and commanding a proportionately small market value, can not bear the heavy transportation charges that might, with less detriment to common interest of both producers and consumers, be levied upon industrial products requiring trained talent and skilled labor in their manufacture. Under the present system of management it is doubtful if the carrying of freight could be made profitable if a material reduction were to be

made in the freight tariffs of most of our principal railroads; but this by no means establishes the fact that freights can not be carried much cheaper by rail than they now are, provided our railroads were operated chiefly with a view to freight transportation. That such reforms in railroad management as will render cheap transportation possible are imperatively demanded in the interest of both the producers, consumers, and exporters of domestic commodities, the public does not need to be informed. Even our vast and rapidly extending railroad system, embracing upwards of fifty thousand miles of road in operation, there does not exist between the different sections of the country that free interchange of products and commodities which is essential to the full prosperity of all sections. For example, while the West produces a much larger surplus of corn and grain than can be profitably marketed, a fair quality of flour costs the consumer in this market from \$6.50 to \$7.50 per barrel, and good wheat is quoted at from \$1.30 to \$1.75 per bushel; and in the South the cotton planters are turning their attention to growing the very crops for which the Western farmers cannot find a profitable market. Again, while in the seaboard markets lumber of all kinds is steadily and rapidly increasing in value, and the coal mining companies of Pennsylvania have forced a suspension of operations on account of "over production," our forests are rapidly disappearing under the woodman's axe, thousands of acres are every year "burned off" in order to clear them, for cultivation, of their valuable forest growth, and in some sections where wood is naturally scarce the want of fuel is severely felt. To overcome these and many equally serious obstacles to our national prosperity, by establishing between the different sections facilities for the cheaper interchange of commodities, was the object of the League of which we have spoken, and that the important movement started under such favorable auspices should have been to all appearances abandoned, is a cause for sincere regret to all who are interested in railroad reform.

The present high cost of cheap freight transportation is easily accounted for. Most companies, owing to the hollowness of their financial basis, are compelled to declare dividends upon from forty to sixty per cent more capital than is represented in the actual value of their roads and equipments. The number of trains run upon these roads is comparatively small, and these are driven at a rate of speed which materially damages the road-bed, ruins the rolling stock and consumes extravagant quantities of fuel. To realize a sufficient profit upon business under such a ruinous system of management, the companies are compelled to charge high rates upon freights and passengers; and the public is not only taxed to pay interest upon fictitious capital, but to repair the constant and costly damages to roads and rolling stock. But suppose that one of these roads, if favorably situated for such an experiment, should be devoted by its managers to the business of transporting freights at rates one-half lower than those charged upon competing lines, and instead of running five trains a day, at a ruinous and dangerous speed, it should run twenty trains, at an average of eight or ten miles per hour. It requires no arguments to prove that such a road could increase its capacity for business four fold, without proportionally increasing its operating expenses, allowing for diminished wear and tear and the greater economy of fuel in proportion to mileage. Relieve such

a road of the burden of a debt for which it has nothing to show but fictitious capital stock, run trains at a moderate speed and as often as business may require, charging no more for freights than may be necessary to pay expenses, plus a legal interest on the capital actually invested; open it to any forwarder or transportation company that chooses to run cars upon it, and the question of cheap transportation by rail would be practically solved.

On a freight railroad, constructed and operated under conditions favorable to economy, and operated with the advantages of uniformly moderate speed, it has been estimated by competent railroad authorities that freight might be carried from the Ohio river to the seaboard for \$4 per ton. This would amount to about 40 cents per barrel on flour and 12 cents per bushel for grain. Double these rates and the facilities thus offered would still attract much of the wasted production of the West to a profitable market, and largely stimulate the development of the natural agricultural and industrial resources of the districts tributary to the business of such a road as we have described. One such road between this city and any given point on the Lakes would have a carrying capacity greater than the aggregate capacity of all the lines of land and water transportation with which it would come into competition. These reforms must be adopted sooner or later, and we are of the opinion that, if the League organized for the purpose of introducing them has been dissolved, the projectors of the reform movement have abandoned it in the face of a certain ultimate success.—*Economist*.

Pneumatic Passenger Cars in Chicago.

A pleasure trip on a new line of pneumatic cars was taken by seventy invited guests in Chicago, on Saturday last. The Times, of that city, describes the scene: The party left the dummy station at three o'clock, and soon arrived at Hyde Park, where the pneumatic car was found backed up to a portable engine at the rear of the depot. The car resembles an ordinary street car, excepting the peculiar formation of the roof, which looks like that of a palace sleeping car, and on this account it was once dubbed "the palace street car" by the visitors. This heavy top renders the car about twice as heavy as others, and is of great importance to the pneumatic car, for it contains the propelling power. It consists of four hollow tanks, made of copper braised together, and of sufficient capacity to hold 150 cubic feet of compressed air, and of sufficient strength to resist a pressure of 200 pounds to the square inch. These tanks are filled or charged by means of an air force-pump worked by the steam engine. Beneath the seats, on either side, at one end of the car are two small machines, operated precisely the same as the ordinary steam engine, connected with the wheels by cranks. The engines are controlled by the conductor on the platform by means of a wheel placed in juxtaposition with the brake. One hand is used in operating the engines, without interfering seriously with the control of the brake.

"After the filling of the tanks, which occupied but a few minutes, the company was divided into two parties to accommodate the size of the car. The first load consisted of thirty men. The car started with the same celerity as one would drawn by a pair of horses, and bowled along very nicely at the rate of six miles an hour. The pressure on

the gauge at starting was 145 pounds. After passing up the track for a mile, the car returned, making the last mile in a few seconds less than ten minutes, and the gauge indicated that only 30 pounds of pressure had been used. The car was reloaded, and went another mile and one-quarter, when the pressure became exhausted. The tanks were only calculated to hold sufficient air to propel the car three miles, and it was so stated by Mr. Myers before the start was made. The trial was pronounced to be entirely satisfactory by the railroad men present, and some of them were quite enthusiastic in their praise of the invention and the inventor. The only objection made was to the slight noise of the exhaust in the little engines, and this, it is claimed, can be completely deadened by having them inclosed in boxes."—*Iron World*.

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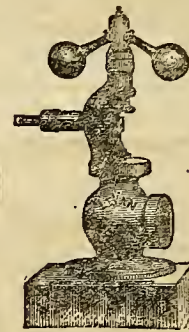
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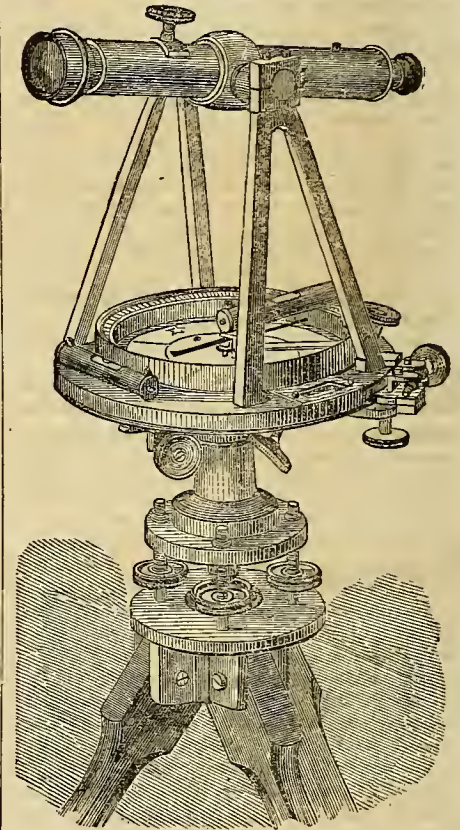
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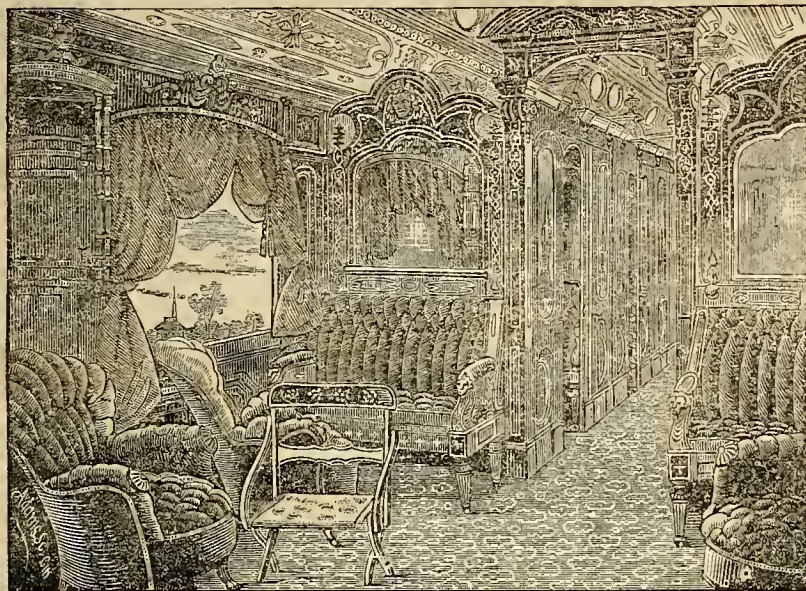
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This Railway extends from
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Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS.

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

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And Fare always as Low as by any other Route.

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W. B. SHATTUC, General Southern Agent.
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Best Route to St. Louis and Chicago**INDIANAPOLIS,****CINCINNATI****—AND—****LAFAYETTE RAILROAD**

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,**CAIRO,****CHICAGO,**

Memphis, New Orleans, Springfield, Quincy

Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,

North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869. TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	7.40 am	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.40 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.50 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile northeast of the business center of the city, and the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE
Eastern Express (Erie Railway).....	7.30 A. M.	6.30 P. M.
do do do.....	9.45 P. M.	7.00 A. M.
Toledo, Detroit & Canada.....	7.15 A. M.	10.25 P. M.
do do do.....	6.30 P. M.	7.00 A. M.
Lima Fort Wayne & Chicago.....	7.15 A. M.	10.25 P. M.
do do do.....	2.30 P. M.	5.40 P. M.
do do do.....	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo.....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	2.30 P. M.	10.20 A. M.
Sandusky, Cleveland & Buffalo.....	6.30 P. M.	10.20 A. M.
Muncie and Indianapolis.....	7.15 A. M.	10.25 P. M.
do do do.....	5.40 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond.....	7.15 A. M.	10.25 P. M.
do do do.....	5.40 P. M.	10.20 A. M.
Hamilton Accommodation.....	9.30 A. M.	8.05 A. M.
do do do.....	6.20 A. M.	

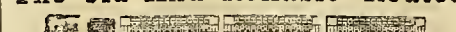
Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

The Old And Reliable Route.

Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SEINN, General Freight Agent.

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI**SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS

leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellsburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE

leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL

leaves Cincinnati 5.00 P. M. Daily (except Sunday). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellsburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS

leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna, and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6.55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckahoe, &c.

7.15 a. m.—For Somerville.

8.30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3.30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4.30 p. m.—For Somerville.

5.25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7.20 p. m.—EMIGRANT—Stopping only at the principal stations.

9.00 p. m.—For Plainfield.

11.50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Saturdays), for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays), for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5.45, 6.30, 6.55, 7.15, 8.15, 8.30, 9., 9.20, 10.30, 11.40 a. m.—12 m., 1.40, 2.40, 3.00, 3.30, 3.45, 4.15, 4.30, 4.45, 5.10, 5.25, 5.45, 6.00, 6.25, 7.00, 7.20, 7.40, 8.00, 9.00, 9.40, 10.45, 11.50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 326 Broadway; No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent

W. J. ANDERSON, Gen. Pass. Ag't

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
A. J. HODDER, - - - - - }

CINCINNATI, THURSDAY, JANUARY 5, 1871

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

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WRIGHTSON & CO., Prop'r's.

The "So-called Short Line Road."

"A Late Stockholder," in the *Gazette*, expatiates extensively on this subject with the laudable desire of sustaining, and then showing, the stock of the "Cincinnati, Hamilton & Dayton" road. We can have no objection to this, but the article affords us an occasion to comment on this business of Short Line and Short Horn roads. At the time when the Cincinnati, Hamilton & Dayton road was made, it was, of course, difficult to raise the capital, and the true policy and results of railroads was little understood. It was supposed the route by the Great Miami was the cheapest, the population densest, and doubtless, also, that the elbow at Hamilton would be what it proved to be—a *point d'appui* for branch roads into Indiana and the North. These were good and sufficient reasons at the time. It was not then understood, and could not be, that in the course of time great railroad corporations would arise, which grasp and gobble small roads in order to command a through route over the country; nor was it foreseen that the entrances into Cincinnati on the river side would soon be crowded and jammed up, so as to be an impediment and inconvenience. These things and many others were not foreseen; so, in the progress of time, there came an agitation for a "Short Line Road." It was natural, it was desirable, if the capital could be found; and in the course of time it will be a necessity. The "tunnel," also, (as we have often said,) will be a necessity.

When Mr. L'Hommedieu and his co-directors bought the present depot ground, they thought it was altogether too large; no need for such extensive grounds was supposed to exist. It was not five years before they were too small; and if the company had bought three times as much, they would have needed it, besides making a great speculation. Hence arose the idea of the "Short Line" and the "tunnel," and both would have been made long since but for the fact of unexpected commercial convulsions at the time they were undertaken.

"Stockholder" considers the "Short Line" as a mere bugbear to the "Cincinnati, Hamilton & Dayton" line. But the fact that much money was spent on that line, and that very recently large expenses have been incurred in re-surveying the route to Springfield, and the large subscriptions on the route, prove that somebody was in earnest, and that the need of such a line is seriously felt. But to "Stockholder." This person at times is humorous; and as he is fond of fun, we will humor him a little:

The subject of a third road to Dayton has been agitated about once in twelve months for the past fifteen years, and always with the same result. The joke was once carried so far as to bury about half a million of dollars in the dark hole at the head of Broadway known as the "Short-line Tunnel." One would suppose that this thing had been carried to the full extent of human credulity, but, like the confidence game, it constantly assumes new shapes only to find new dupes.

We will tell "Stockholder" two facts. The first is, there never was as much money sunk in the "tunnel" as the Cincinnati, Hamilton & Dayton sunk in Lake Erie steamboats and contracts with the Great Western branch roads. Next, the "tunnel" was fifteen years ago, and is to day, by far the best railroad enterprise which any company, or any of the existing railroads, can indulge in.

"Stockholder" tells the following story:

It is related that on a recent occasion of a meeting of parties concerned in the Short Line enterprise in New York, old Commodore Vanderbilt was present. The maps were spread upon the table, and a gentleman was tracing out the proposed route of the new road. The Commodore was looking on intently, and placing his finger, first on the line of the Little Miami, then on that of the C. & H. & D., he asked, "How far is it from there to there?" On receiving answer, "About ten miles," the railroad king replied, "That is quite near enough." Here is the whole story in a nut shell.

No doubt the "story" is in a nut shell; but, if Commodore Vanderbilt ever said that, he made himself very ridiculous; for he and his colleagues own both the Hudson River and Harlem roads, which do not average fifteen miles apart for a hundred and fifty miles!

"Stockholder" is probably a lawyer, and his law and facts are consistent—the facts as good as the law, and the law as good as the facts. He says truly that an Ohio law has expressly provided for the aid and endorse-

ment of one railroad by another, but immediately proposes to enjoin the Cleveland & Columbus road if it should dare to do any such thing; and on what ground? Hear him!

But this is not all. The endorsements, if sanctioned by the stockholders of the two roads named, would not be legally binding on the companies, and of course the bonds could not be sold at any price with such a taint upon them. By the terms of the enabling act, passed by the Legislature of Ohio in March, 1869, railroads in this State may aid other roads by the endorsement of bonds or otherwise; but it is expressly provided, in said act, that the road receiving such aid must be directly connected with the road granting it. In the present case, this important condition is wanting.

Well, if Delaware, Springfield, and Dayton are not in a pretty direct line from Cleveland to Cincinnati, then the map of Ohio has somehow gone astray. If he suppose the Supreme Court of Ohio will enjoin a railroad from furthering its own interests because it is not an air line, he will probably live to find himself much mistaken. But why all this flurry about this matter? Why make, in advance of all action, a hypothetical case about the Cleveland & Columbus road? What harm has it done to the Cincinnati, Hamilton & Dayton? The fact is evident that the "late Stockholder" knows—and we are very glad to hear it—that a serious effort will be made by the roads interested to make a new and better entrance into Cincinnati. We know nothing of their purposes, and are in no way connected with them; but we are glad to be informed by one who is behind the scenes—and "Stockholder" evidently is—that there is a fair prospect of the "Short Line" being made.

"Stockholder" gives us this valuable testimony to the "Short Line." He says:

Before closing, there is one more point demanding attention. A chief argument in favor of the new road has been a shortening of the distance of nearly six miles to Dayton, thereby reducing the time of transit and the cost of maintaining and operating about ten per cent. If this were true, the so-called Short Line would enjoy a great and permanent advantage.

Now "Stockholder" tries to hack the force of this admission by quoting Mr. Shoemaker, as saying that the Hamilton line would be *practically* the shortest. Shorter than what? Why, than a line which should turn off at Glendale! That is not the question; that is not the "Short Line." We will inform the "late Stockholder" a little:

1. The "Short Line" route is not six nor seven, but *nine* miles shorter than the Hamilton & Dayton road. The route of the Great Miami turnpike, surveyed by Mr. Forrer, through Franklin is less than 51 miles, and the turnpike itself is no more.

2. As to the *practically*, the route is from Dayton to Franklin, on the east side, a better

route than that of the Dayton road now. From Fraukliu to Cincinnati more than half the distance is in the valley of Mill Creek. By passing a little west of Chester, and bearing not more than a mile, an easy passage through the hills is found; and that route can be run at, not one-tenth, but *one fifth*, less time and cost than can the "Cincinnati, Hamilton & Dayton."

The "Cincinnati, Hamilton & Dayton" is a good road, and may be made more profitable than it is; and it can but do so by minding its own business.

Lebanon Short Line.

AN INTERESTING LETTER.

We do not know whether the following letter was designed for publication, but as it is addressed to us as Editor, and it contains thoughts of general value, we see no impropriety in giving it a place in our columns, particularly, as we suppress the writer's name.

We may publish our reply in a future number of the RECORD.

LEBANON, O, Jan. 2d, 1871

A. J. HODDER, Ed. *R. R. Record*:

Sir—I suppose you are aware that we have been pretty badly fooled lately, in an attempt to secure the construction of a railroad through this place. I say fooled, (although I hate to confess it,) because, let what will be said or published about the matter, that is the fact, and hereabouts we all understand it now, and can't be very easily fooled again by the same parties, nor for any similar purpose.

Yet we are as anxious for a railroad as ever, and I think the stirring up of our people upon the railroad question has satisfied them more than ever of the value they will derive from such a work, and they are ready to aid in its construction to a greater extent than before.

But the question comes up, who shall start this project so as to inspire public confidence, and command the largest support the people can give it? And next, can a plan be organized that shall promise success, and be out of the reach of the powerful conflicting interests that have hitherto prevented the making of another railroad in the Miami valley, and that we may be sure will attempt to do so again, and as often as the experiment is tried?

I have my own views upon these questions, but I am not a railroad builder or financier, and from what little I have recently seen of such men, I do not want to engage in that profession, hence I would like to submit my ideas upon this subject to you, and ask whether, in your judgment, matured by experience in such matters, they are practicable,

and if so, what steps ought to be taken to carry them out.

I have argued myself into my present position by first looking over the several attempts that have been made to construct this work, and what our former opinions have been, and concluding what ought not to be done, and I can not convey my views to you better than by following this same line of thinking in this letter.

In the first place, I think, and our people now agree with me in this, that there is no use in relying upon the fertility of the Miami valley, the salubrity of its climate, the enterprise and intelligence of its people, nor the beauty of our village, or its advantages for rural residences for wealthy denizens of Cincinnati, or the anxiety of our people to trade and traffic in the Queen city, nor even the extent of our stone quarries, nor any of these things to attract capital and secure the building of this much desired railroad. All these are very desirable qualities, and what is said of them may be, and doubtless is true, but they don't bring "foreign capital" into our section of the country, there is not such a *rush* of moneyed men to seize these vast resources, and gaze upon these natural beauties as we have hoped there would be. We have tried them pretty thoroughly for the past quarter of a century, and they have not succeeded, hence we conclude they will not, whilst capitalists are so *stupid* as we have thought they were, and so lacking appreciation of the beautiful as they seem to be, and so wanting in the common interests of some of their fellow-men, at least, as to be unwilling to spend money for their benefit.

I think, and the people hereabouts think so too, that there is no use to depend for the construction of our railroad upon any of the great companies, or all of them together, whose existence and prosperity depend upon their having an independent entrance into Cincinnati.

It's a great pity for these great railroad corporations that their welfare, or what is worse, their very existence is thus imperiled, but so it is, and they must stand it. We can't rely upon them. For hav'n't we had the New York Central, with Commodore Vanderbilt, The Erie with Fisk and Gould. The Sandusky, the Dayton & Eastern, the Cleveland & Columbus, the Michigan Southern, the Foster's crossing cut off, the Short Line, the Cincinnati, Wilmington & Zanesville, and lastly the Cincinnati, Mill Creek Valley, Lebanon & Springfield iron tie, steel rail, grand trunk and stem line railroad company with the Shoemaker individual liability attachment? And have they not all failed us? Are we not justified therefore, in having no faith whatever in any efforts these great corporations may make to build our sixty miles of railroad?

And I think again, and am again sustained

by the people in interest, that if we wait for "speculators" to build our road we shall probably waste such of our substance as we place under their control, see a little surface scratching done upon the face of our beautiful valley, and our children, even their children, will continue to long, as we have done, for the modern improvement that will move us to the front of civilization.

Then, if none of these means are to afford us relief, what shall we have to do to secure it? What can we do?

I think, once more, and believe you will agree with me, that we must depend upon ourselves, that we must ascertain whether we have local resources adequate and available to place the work in such a condition that it will be a basis of marketable credit by which it can be completed, and then find men to place in the management who have a common interest with us, and who, though they may not be skilled railroad men, are men of business tact and experience, of ability, and who can learn the mysteries of this strange profession, and who will serve us before they become contaminated and up to the tricks that my acquaintance with "old railroaders" show they all are, more or less subject to. We must find men who can not be bought, either, because they are above price (which we confess is probably impossible as things go now-a-days) or as are unpurchasable by any means the antagonistic interests of which we have spoken are able to pay; or what is more likely to be found, men who have a much larger interest in the success of the undertaking than they can possibly obtain by its defeat.

Now, Mr. Editor, these are my ideas upon this matter. If they can be organized in any practical way to be effective, I believe we can secure this devoutly to be wished improvement, and if not, I see no hope for us, nor any encouragement whatever to make further efforts in that direction.

As I said before, I am not a railroad man, and therefore do not know what means are available for such a work as ours, nor what it will cost, nor what preparation is necessary to make it sustain a good credit; but I believe I can select the men who would command the highest confidence of our people, and under whose direction, at least *Five Hundred Thousand Dollars* of local assets can be quickly and cheaply secured for this enterprise.

From what I heard during the recent canvass for contributions for the Shoemaker road, I suppose a half a million dollars will not do very much towards building this road, but I have been told by a good engineer that there are economies known to railroad men, if not practiced by them that would make this sum go a great ways towards grading this road, and placing it in the best possible condition to be used in the manner suggested for completion. If this is not true, may not this amount enable us to build a narrow or thirty-

three inch gauge road? These seem to be the popular railways just now, and from what I have read of their cost, capacity and economy in the pages of the RECORD; I am inclined to the belief that such a road is within our reach, and will answer all our purposes.

What think you? I have mentioned this narrow gauge plan to several of our leading citizens, and they say if it is what reports claim for it "to go ahead," a railroad we must have if it is possible, and if what means we have will not build a big one, we are willing to begin with the "day of small things."

As soon as possible I would like to hear from you upon these subjects.

Yours, &c.,

The Short Line Tunnel Again.

The article of a "Late Stockholder" in the *Gazette* of the 27th ult., to which a reply was promised in our late issue, is in fact entitled to no notice from us or any one. It is a tissue of flippant and *ad captandum* assertions concerning a great work in which the people of this city are very deeply interested, as well as those of the surrounding country, and in which also are involved the vital interests of several lines of railroads.

Although the article to which this is meant as a reply might be characterized as impudent and unworthy of any attention, yet in view of the magnitude and importance of the subject, affecting as it does the great future of this city and large tracts of contiguous territory, makes it proper that we forego the contempt which the pettifoggery of the article in question engenders, and treat the subject soberly.

In our preceding article on this subject we attempted to exhibit the malign influence which the C. H. & D. and Little Miami roads exercised over this city by being instrumental in preventing the construction of at least five lines of railroads pointing towards us, and crippling five others so as to render them of little value to us, by means of the monopoly which these roads held over the railroad avenues into the city. With this tunnel completed fifteen years ago, and with free passway, and facilities within the city for the transaction of the business of these several roads, and the extensions and connections which they would have secured with distant portions of the country—thereby multiplying and extending our trade—who will say that 218,000 is all the population which we can or could claim in this year of our Lord, 1871;—would not half a million be nearer the mark, with an area of land upon which to expand, which the construction of this tunnel would have furnished. And what right, let me ask, has the C. H. & D. or the Little Miami to interpose or prevent the construction of this work. Do they own Cincinnati? Have they a prescriptive right

to hedge in, and prevent our growth! We are aroused and excited by the erection of monopolies which are comparatively insignificant as compared with this. Our Gas Company's exactions are a fraction too much and we become frenzied over the imposition. Or a bridge across the river trenches a trifle upon the water way, and lo! we move Heaven and Earth to abate the nuisance. Yet here is a monopoly which circumvents us, absolutely hinds us as with bands of steel, and says to us, "thus far shall thou grow but no further," and we lie down with the meekness of lambs and submit to the imposition.

The writer in the *Gazette* attempts to sneer at efforts which from time to time, are put forward to escape from this thralldom. He does not want this short line or tunnel built, oh no! this might interfere with the C. H. & D. or Little Miami interests; but in case of necessity in his judgment out of great concern for our people and abundance of charity. "Should the business ever increase so as to justify the outlay;" (thus he writes) "the two roads," (the C. H. & D. and L. M.) can be double tracked throughout when their capacity for traffic will be more than quadrupled." How considerate, how generous, but are the people of this city, of Mill creek valley and the surrounding country prepared to submit to this. Thank God, we may yet escape and throw off the incubus that has weighed us down, and that we will, I have a confident hope.

Ere a twelvemonth rolls around, I trust that this work will be far advanced towards completion, when the impudent swagger of these hireling advocates will no longer offend us. *

The Cincinnati Southern Railroad.

Yesterday, the Superior Courts of Cincinnati in general term decided that the Ferguson bill is constitutional. Judge Taft delivered the opinion of the Court, Judges Hagans and Storer approving.

Oil That Don't Freeze.

During the recent cold snap, we were annoyed by the congelation of the oil in the oil cups upon our machinery, and whenever they were at all exposed, in a single night the oil would freeze into a solid lump.

To relieve ourselves from this inconvenience, we tested thoroughly all kinds of lubricating oils that we could obtain, but without satisfactory results, until we obtained an article from the agent of Messrs Kraft & Moore, of Parkersburg, West Virginia, and known as "Purified Natural West Virginia Oil." This stood the severest trials most satisfactorily, not even thickening in ordinary exposure, and but triflingly so, where other oils had frozen solid. This we regard as a great merit, and when this is known, and that this oil is as free from impurities, and possesses all the

lubricating qualities that the best of such oils can boast, it ought certainly to become a favorite in the market.

THE MECHANIC AND INVENTOR. PUBLISHED AT DETROIT, MICH.—We would like this valuable paper to have a circulation equal to its deserts. It is certainly one of the very best of its kind that finds its way upon our table, and one to which we always give the readiest welcome.

As a scientific journal, it ought to be the favorite of our Western people; and if a little well directed effort is now made on the part of its present subscribers, it can become so at once.

The Huntoon Governor.

Some three years since our attention was attracted by a small advertisement, bearing the above caption, accompanied by an illustration. From our earliest recollections, however, having always associated with our ideas of a steam governor the absolute necessity of two swinging balls upon an upright pedestal, we were inclined to question whether the cut and advertisement really belonged together. A rigid adherence to the same general outline, as has been the case in the construction of steam governors for a century, however varied the mechanism in minor particulars, would seem to be an obstacle too formidable to warrant the hope of any rapid appreciation by the public of a machine so entirely opposite in principle, construction or appearance. Yet from one modest certificate, dated some three and a half years back, from parties who ventured at first, as a trial, to allow the invention to be tested upon their engines, we are informed that at present the proprietors have in their possession some thousand testimonials to its efficiency and superiority.

The early adoption of a system of judicious advertising, we are assured in this case, as with most new inventions of real value, together with a liberality in management and unflinching integrity, and adherence to contracts, has been greatly instrumental in producing the result. By this, however, we do not mean to detract in the least from what we know to be of the greatest merit in the invention itself. We have neither time nor space for any description of the machine, but as an illustration of what may be done with a really valuable invention when under the management of liberal-minded business men, however great the opposition, we allow the above facts to speak.

✎ We can endorse almost anything that can be said in favor of the Huntoon Governor, having had one in use for a number of months. It can be relied on to do the work.—ED. RECORD.

✎ Pyrography is a new art invented in England, and consists, as the name indicates, in printing by fire through a system of metallic cylinders, which hurn into the wood any design required, which is indestructible. From its nominal cost and great beauty, it seems likely to take the place of much of the expensive ornamentation and inlaid work now done by hand.

GREAT TUNNEL UNDER THE SEVERN.—*Herald's Railway Journal* has the following concerning a proposed railroad tunnel under the Severn for the Great Western Railway of England, which surpasses in extent the proposed tunnel under the Detroit River for the Great Western Railway, of Canada, and the Michigan Central:

"Under concession from the Board of Trade, the construction of a portion of the tunnel under the estuary of the Severn, at the new passage, can be commenced at once. The tunnel will be about 4 miles long. Upon its completion that part of the railway could be used, by which the distance by railway between Salisbury and other towns in the counties of Somerset, Wilts, and Dorset, and Smith, and Wales would be shortened to the extent of 61 miles.

"The works will be commenced under the direction of Mr. Hamilton Fulton, the engineer who designed the plan of the line some years ago. It is believed that the tunnel can be completed, if the necessary capital is forthcoming, in two years' time. The shafts by which the excavation of the tunnel will be removed will be comparatively shallow and inexpensive. They can be made short at intervals, without incurring any great extra amount of outlay, and so much accelerate the time of completion. It may be mentioned that the tunnel under Mont Cenis is 7 miles long, and that the excavation has all been made from the two ends or "faces," owing to the great height of the summit, which has caused tardy and expensive progress. In the case of the Severn tunnel, the works will be carried on at twenty-four different "faces," and as the material to be removed consists of either marl or red sand-stone, the economy of the work are, it is said, pretty well insured, and Mr. Fulton estimates the cost at £900,000 per mile. The present amount of coal raised annually in the South Wales district is about six millions of tons. Two millions of tons, if this line were made, would, it is believed, be carried over the Great Western Railway to London."

—On the Northern Pacific, discoveries of vast veins of lignite coal in the Missouri valley, have been made by Capt. Morris' party of engineers, which will be a godsend to the road which traverses so large a section of woodless country. The veins range in thickness from eight to twelve feet, and outcrop at many points in the Great Missouri Coteau, indicating an almost inexhaustible supply.

INDIANAPOLIS JUNCTION RAILROAD.—The annual meeting of the stockholders of the Cincinnati & Indianapolis Junction Railroad was held at Connersville, Ind., last Monday, resulting in the election of the following named gentlemen for Directors for the ensuing year: Lewis Worthington, Wm Woods, J. M. Donohue, J. A. Frazer, C. J. Acton, of Cincinnati; J. M. Ridenour, of Indianapolis, and A. H. Campbell, of Liberty, Ind. The board organized by re-electing Lewis Worthington, President; M. H. Coates, Secretary and Treasurer. The other subordinate offices are to be filled hereafter. There were represented in this election twenty-four thousand shares, a larger amount than for several years past, showing increased interest in this important road.

—A special train of thirteen freight cars lately conveyed from Liverpool to London 74 tons of Mexican silver dollars, worth \$2,652,160.

The Trials and Troubles of a Railroad Man—Short Line Indignation.

R. M. SHOEMAKER INTERVIEWED—IMPORTANT FACTS CONCERNING THE GRAND TRUNK SHORT LINE ELICITED—TRIUMPHANT VINDICATION OF THE PARTIES CONCERNED—SCENE IN THE LIFE OF A REPORTER.

The subject of the Short Line Railroad being of all-absorbing interest, and news concerning the same being eagerly sought for, we felt it our duty to especially investigate the subject and throw all the light possible upon it. In order to the more effectually accomplish this object, we dispatched a reporter to interview R. M. Shoemaker, and the following is the result. After arriving in the city, our reporter experienced some difficulty in finding the President of the Cincinnati, Lebanon & Springfield Short Line Railroad. After inquiring of several business houses, and of divers persons of knowing exterior, without obtaining the necessary information as to where Mr. Shoemaker could be found, he at last bethought himself that he had neglected to tack on to his inquiry, "Grand Trunk, Steel Rail, Iron Bridge, Short Line Railroad via Millcreek Valley." After this he was more successful, and at last was directed to Mr. Shoemaker's office, which he entered, and, after the ceremony consequent upon the meeting of two great men, the following conversation took place:

Reporter—Did I understand you to say, Mr. Shoemaker, that your name was Shoemaker?

President S. L. R. R.—That is my name, sir.

Reporter—As my mission is one of grave importance, may I ask if you claim to be R. M. Shoemaker, President of the Cincinnati, Lebanon, Springfield, Grand Trunk, Steel Rail, Iron Bridge, via Mill Creek Valley, Short Line Railroad, etc., etc.?

President S. L. R. R.—I have the honor of filling that responsible position.

Reporter—I would be correct, then, under the circumstances, in arriving at the conclusion that I am now addressing R. M. Shoemaker?

Pres. S. L. R. R.—You certainly would.

Reporter—Have you a distinct recollection of making a proposition to certain persons in Lebanon, that if \$250,000 was donated to the road, you were authorized to locate and build a railroad from Cincinnati through that place to Springfield?

Pres. S. L. R. R.—I have a faint recollection of making a proposition of that kind. Railroad men frequently indulge in that species of amusement.

Reporter—Exactly; I was not certain but that you had forgotten the circumstance. May I be tolerated in asking by what authority you made the aforesaid proposition, and in what kind of faith it was made?

Pres. S. L. R. R.—By the authority of my profession, and in "railroad" faith.

Reporter—Perfectly comprehensible, no doubt, to railroad men, but can't say as I fully comprehend it. My curiosity would certainly be gratified, however, by learning something about the Short Line Railroad. Will it be built, or will it not be built?

Pres. S. L. R. R.—In view of the present condition of railroad affairs, you are very likely correct.

Reporter—About what time will the road be completed, and would you recommend the farmers to hold their grain until its completion, in hopes of a rise in the market?

Pres. S. L. R. R.—Like all railroad men—very scrupulous for truth; but don't you fear that and veracity, especially the latter—I would not like to give the exact date of its completion, for fear it might, by some unforeseen event, be completed one day before or not until a day after, in which event my reputation for truth might be questioned. I would advise farmers to hold on to their grain until it advances to the highest point, and then sell.

Reporter—Happy to hear that you are so solicitous for truth; but don't you fear that Short Line Railroads will finally become unprofitable? There have been two or three built from Dayton to Cincinnati, upon what is familiarly known as the Big Miami Route, one by way of Centerville stone quarries, through Lebanon, and one by way of Mill Creek Valley, Lebanon and Springfield, which is to be the Grand Trunk Road, Steel Rail, Cast Iron Cross Ties and Iron Bridges. Will not the facilities for transportation overreach the transportation to an extent that will reduce the business of the roads below the expense of running them?

Pres. S. L. R. R.—No, I think not; opposition, you know, is the life of trade, besides other roads—the Pennsylvania Central, for instance—help us out frequently, by voluntary contributions. The survey, it is true, is the greatest expense that we incur in our manner of building railroads; but the generous people along the line frequently aid us in that respect. "Your constituents" were quite liberal with us in the matter of the Trunk Road Short Line survey.

Reporter—I think I hear mention made of the circumstance of the survey donations by our people. In fact, you are rather popular with us as a public benefactor. The people of Lebanon could not do otherwise than so esteem you. Though the Short Line is rather shorter than we at first anticipated, and you did not pay back the survey money as you agreed to do if the "Line" was too short; but, then, that is nothing. Our people never stand on a few dollars, especially if it is in favor of a poor devil. They think of making you a present of inherent value if you will come up, but they do not feel sufficiently indebted to you to bear the burden of transportation. Pardon my inquisitiveness, but it would be a source of pleasure to me to be able to tell the people of Lebanon something approximating to the amount you received of the Pennsylvania Central, Erie, and other roads, for building the Short Line about forty-six miles too short at the lower end?

Pres. S. L. R. R.—I would be happy to gratify you; but, for fear I should make a mistake of a few cents of the amount, I should prefer to wait until I can obtain the exact figures. Donations were perfectly gratuitous, of course, and accepted by us with a great deal of reluctance.

Reporter—To what church do you belong?

Pres. S. L. R. R.—I am a member, in good standing, of the Presbyterian Church.

Reporter—Pardon my impertinence again, but I thought your spiritual as well as your physical being was transported on "short lines," in which event Presbyterian grace would be of little consequence. Laying all jokes aside, have you anything to offer in palliation of your course toward the people of Lebanon, who consider you a cheat, a humbug, a railroad paltroneer and falsifier, deserving the condemnation of the people along the proposed road, and especially the people of Lebanon, and in particular those persons who pledged their names for the money to complete the survey? If you have no answer to

this, permit me to "assume the pressure," and deliver it in the way of direct address as the blessings of our people, and—

At this point, our reporter says, a big Irishman made his appearance from the back room, and he concluded to proceed up street, after successfully gathering himself up at the foot of the stairway. He says the Short Line is completed, for he came down Shoemaker's stairs on it, and that it is "steel rails," also. Since the above interview, he has taken to more peaceful pursuits, and is now engaged looking up agricultural items, and is confident that the Short Line Railroad is a "fixed fact."

—*Lebanon Patriot.*

Indianapolis, Cincinnati and Lafayette Railway.

REPORT OF THE RECEIVERS OF THE ROAD.

The following is a classified summary of the balance sheet, showing the total receipts and expenses of the Receivers from the 26th of October to the 30th of November, 1870, inclusive: Main Branch receipts, \$173,061.34; expenses, \$78,006.83; gain, \$95,054.51. Martinsville branch: receipts, \$3,320.13; expenses, \$4,949.47; loss, \$1,629.34. Whitewater Valley branch: receipts, \$16,181.80; expenses, \$14,882.70; gain, \$1,299.15. Harrison branch: receipts, \$4,678.54; expenses, \$2,057.22; gain, \$2,621.32. Hagerstown branch: receipts, \$1,774.72; expenses, \$1,871.88; loss, \$97.16. The expenses above shown, so far as they relate to repairs of roads, depots, bridges, water stations, and fences, are the actual amounts paid upon said main line and branches respectively, but all the other expenses shown above are unavoidably prorated between said main line and branches. The apportionment was made according to the relative amount of business done, and the estimated amount of service required in doing the same. While, therefore, that exhibit does not show the exact actual expenses of the respective roads, it is believed that the results stated very closely approximate the actual expenses paid upon the respective roads.

As to the branch roads, the receivers submit the following additional facts, viz.: That the accruing rents for the period that they have been operated by the receivers is unpaid, and that the amount of such rents does not appear in the above. The rent chargeable to the company on account of the Martinsville branch under the existing contract with the company owning the same, is \$54,000 per year. The proportionate amount of rent for said branch for the period covered by said exhibit would therefore be \$5,250. This sum added to the deficit shown by the exhibit would show a net loss upon that branch, for the period of one month and five days, of \$6,879.34. The yearly rent for the Whitewater Valley Railroad under the existing contract with the lessor thereof, is \$140,000. The proportionate amount of said rent for the period covered by said exhibit is, therefore, \$13,611. If from this sum is deducted the apparent net gain upon said branch by said exhibit, there will appear a net loss upon said branch, for one month and five days, of \$12,311.85. That the like proportionate rental upon the Harrison branch would be \$2,339.27, which would reduce the apparent gain upon said branch to \$282.05. That the like proportionate rental upon the Hagerstown branch would be \$1,690.16, which, added to the loss as shown by the exhibit, gives a net loss for said period of one month and five days upon said branch of \$1,787.32. They further state

that this unfavorable showing as to the results of the business of the branches will be rendered still more unfavorable when their proportionate taxes for the current year, and their proportionate amount of expenses, such as salaries of executive officers, expenses of foreign agents, renewal of iron, etc., shall be charged against them. The receivers submit it as their conviction, grounded upon actual experiment and observation, that no one of said branch roads can be operated under existing contracts without loss. They state that the exhibit of net results for the period covered by the report, can not be relied on as indicating an average for the year, so far as relates either to the main line or either of the branches. There are various expenses, such as salaries for executive officers, expenses of foreign agents, renewal of iron, taxes, etc., not included in the present report, which, if paid, would materially reduce the apparent aggregate net receipts: they also state that the gross earnings received by them have been beyond the average of a whole year. It is shown that on the 1st of January, 1871, there will be due to various parties in Cincinnati about \$31,000 for rent of property leased for the uses of the company, for the payment of which authority is asked by the receivers. They represent that portions of the floating debt of the company are secured by pledge of stocks, bonds, and other property of the company; and other portions are secured by mortgage on its real estate. They say that in some cases the debts thus secured by pledge and mortgage, especially some secured by pledge of bonds and stocks, are past due, and that the creditors holding the same threaten to sell the pledge for the satisfaction of their debts. They say that the certain result of permitting such sales will be the partial sacrifice of the securities pledged, and a serious loss to the trust. They say that the aggregate amount of indebtedness secured as aforesaid, by pledge and mortgage, is about two hundred thousand dollars. They represent that, in their judgment, it is expedient that they be invested with authority to effect a loan of money to be used from time to time, should exigencies require, to protect said securities by the payment of said debts or portions thereof. They therefore pray for an order of court, authorizing them as receivers to negotiate a loan of two hundred thousand dollars upon their notes or bonds as receivers, and that the amount so to be borrowed may be adjudged a first lien on so much of all the net earnings of the company as may be agreed upon by the receivers and the lenders, and that the loan or loans be charged thereon as a preferred debt. Judge Tarkington ordered the appointment of John E. Davidson as master commissioner for the examination of the report and exhibits submitted. Time was granted to the 25th of January for the filing of the schedule and inventory. The Court refused instructions as to the branch roads, but gave the receivers authority to make any arrangement with the lessors they could for the surrender of the branches, or for any modification of the terms, or to bring suit for the determination of the lessors, so that loss may be avoided. All the other authority requested was given, including that for a loan of \$200,000 which shall be made a preferred claim against the net earnings of the road.

—The Platte bridge on the Omaha and South-western Railroad will cost \$160,000. The company are asking additional county and private aid.

Narrow Gauge Railroads.

We have received a pamphlet from Messrs. Paul Bros., Civil Engineers, resident at Akron, Ohio, that treats ably the much mooted question just now of the narrow gauge as the fitting one for lateral lines of railway.

We are pleased to find that this subject is attracting the attention of such gentlemen as the Paul Bros. It but needs discussion to become popular and to secure adoption.

We can not do better for our readers, in treating upon this topic, than to present copious extracts from the Paul Bros.'s pamphlet:

We find in the Report of the Commissioner of Railroads for the State of Ohio, for the year 1868, a list of the thirty-five railroad corporations then existing in that State, and that of this number, representing 3,200 miles of road, only seven, representing 540 miles of road, or but one-sixth of the entire length, paid interest and dividend from the start.

Other roads, with an additional length of 770 miles, subsequently became profitable, making the number of paying roads at that time some 40 per cent. of the whole length.

Of these latter, however, and of those roads which are destined to yield dividends in the future, it must be remembered that investing money for a series of years without interest very materially reduces the value of the original outlay, and that at times the prospect of ever realizing anything from the investment seemed so slight that many stockholders sold their stock at more or less of a sacrifice, often realizing but a fraction of its cost.

We find, also, that many roads sunk every dollar of their capital stock, the loss in this way amounting to nearly forty millions of dollars.

Other roads were mortgaged for more than they were worth, thus entailing loss on the part of the holders of their bonds; and it would not over state the case to say that in Ohio the losses from entire and partial sacrifice of stock, and on capital advanced in the shape of loans, etc., would amount to sixty or seventy millions of dollars.

The history of railroads in other states is the same as in Ohio, one of financial embarrassment and failure, and it is not worth our while to enumerate examples to show the great losses which have been sustained in railroad building.

The unprofitable nature of railroad investment is something every one is aware of; and so generally is this understood, that capital is invested in them, not with the expectation or scarcely a hope of ever realizing from it as a direct investment, but for considerations of a wholly different character.

That by opening a new avenue of communication it may stimulate business, develop resources, and enhance the value of real estate, or as a means of competing with rival towns prospering under the effects of railroads they have opened.

These are the considerations which influence the building of railroads; and the required capital is generally contributed, not from the accumulations of capitalists, but withdrawn from protective industry, paid by anxious, struggling, enterprising men, who can ill afford the loss of the money, but hope for an increase of business and of profits from the effects of a railroad.

In the West, the aid of the general govern-

ment is called in to furnish liberal subsidies in money or public lands, while state and municipal taxation are largely resorted to.

This practice of investing money without expectation of direct returns is something entirely different from the general custom of doing business.

Referring to the report of the State Engineer and Surveyor of the State of New York for 1868, we find that the gross amount earned by the railroads of that State for the year previous was \$47,377,790, and that the expenses of operating and maintaining them, including every item of expense but the sums paid for interest and dividends, amounted to \$35,737,830, or 72.88 per cent. of the earnings.

The Commissioner of Railroads of Ohio, in his report for 1869, gives the total earnings of that State at \$30,136,965, and the expense \$21,091,591, or 69.90 per cent., thus giving as the combined results of these States that for every seventy-one cents expended a dollar was received, or in other words, without reckoning interest on cost, the roads of those States were run at a profit of 40 per cent on the capital invested in operating them and keeping them in repair.

It is worth attention, too, that while the amount of capital invested in Ohio in construction and equipment was \$176,455,722, the whole earnings, without any deduction, would only afford 17 per cent. interest on their cost.

While it is no doubt true that, by the progress of invention and improvement, we may somewhat reduce the per centage of the cost of railroads, it is evident that the great cause of their unprofitableness has been that but few lines can command sufficiently large traffic to pay the interest on their cost, even if the business is done at 40 per cent. profit on the capital invested in operating and keeping them in repair; thus showing that any means which will tend to reduce their first cost will be a step in the right direction.

In this connection it is proper to remark that the efforts which some railroad corporations have made to economize capital by means of the use of inferior iron, unsound ties, the want of proper ballast and drainage, and the general imperfect construction which characterize too many of our American railroads, have proven to be a failure, as a matter of course.

We find, also, that while on a well ordered railroad no difficulty is found in passing from twenty to thirty trains daily, that in the State of New York the average number was only eleven and one-half, or one-half their capacity.

And when we consider that this average is mostly made by the great trunk lines, it will be admitted the average of the majority of the roads is much below this; and that taking the roads of the whole country we will find that a large proportion are not able to secure traffic enough for more than four to six trains per day.

Thus while instances may occur when some of the leading roads pass as many trains as practicable, the fact still remains that a very large proportion of our railroads are not run to more than one-fourth to one-sixth their capacity.

The question then arises, can they afford to build structures on such a scale and of such magnitude that the capacity for business is from four to six times the amount actually done?

Is such a practice compatible with sound business principles, or with the manner in which other business is carried on?

In an industrial enterprise would a company consider themselves warranted in constructing buildings of four times the necessary capacity, and thus carry a large amount of unnecessary or dead capital which would decrease the dividends; or in case where a portion of the capital was borrowed, tend to impoverish the company? Would it not be better for them to build on that scale that common experience has taught them sufficient for their needs?

Why these considerations should have been lost sight of in railroad building it would be hard to tell, save that under our present system of construction no opportunity is offered to further economize in cost, and it remains for us to show in this article how far the great problem of less expensive construction would be solved by the introduction of narrower gauge than at present in common use.

Roads of this character have long been in use in the mineral regions of this country, but it is not until lately that their capacities for general traffic have been understood or investigated.

Their economy of construction and cheapness of operating are so striking, that of late the attention of thinking engineers has been drawn to them to see if they were not built on a better principle than those of the ordinary gauge, and the result of their investigations has been to demonstrate their superiority.

In the first great item of cost, the moving of masses of earth and rock, we find a reduced amount is required for a narrow gauge, not only because the embankments and cuttings are of less width, but we can introduce curves of shorter radius, and thus better adapt the line to the inequalities of surface, passing around instead of cutting through the hills, thus securing easy gradients without expensive works, and at the same time effecting a saving in the cost of the right of way by lessening and avoiding the damage to private property.

By reason of the reduced gauge, a lighter iron rail could be used—an important consideration when iron is from \$80 to \$85 per ton—so that a reduction of weight from seventy to thirty pounds per yard would amount to five thousand dollars per mile.

This saving of first cost would extend to a greater or less extent to every item that now swells the expense of construction, such as cross-ties, ballasting, bridging, culverts and masonry.

The cost of the equipment, the engines, cars and machinery, would be less in a marked degree, as we would be enabled to use locomotives costing from four to seven thousand dollars, instead of those costing from twelve to fifteen thousand dollars.

And when we consider the shifts that are resorted to, to obtain the necessary capital, the discounts of brokers, agents, and middlemen, we can see where, by reducing the amount of capital required, we can avoid the loss sustained in that direction.

So, too, when we can raise it to a paying enterprise, can we secure better materials and more perfect workmanship.

By reason of this superior construction, and of the reduced gauge, we may effect a saving in the cost of the repair of roadway, etc., thus reducing the per centage of expenses; but this is of little importance compared with the advantages we have enumerated in the saving of original cost, wherein the great merit of the narrow gauge consists, and the ground upon which we advocate its introduction.

When the capital required to build railroads

is limited to an amount in proportion to their needed capacity, it will exert an important influence on their extension and usefulness.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

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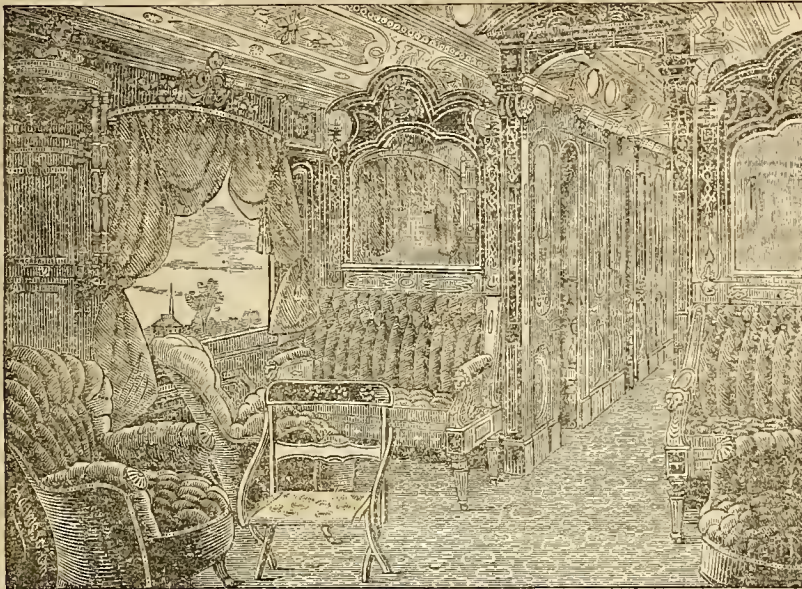
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From Cincinnati or Columbus to Baltimore and but ONE CHANGE Philadelphia and New York.

Ask for TICKETS and BAGGAGE CHECKS via Baltimore & Ohio R.R.

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JANUARY 1st, 1870.

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TRAINS RUN AS FOLLOWS

St. Louis, Evansville and Cairo

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Through Western Express..... 5:10 P. M. 8:30 P. M.

Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cin'ti time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

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THE LOBDELL

CAR-WHEEL, TIRE & MACHINE

COMPANY,

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Established in 1836

All kinds of Railroad Machinery

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22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Handley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbant, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Coopersown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the upper portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through
And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 89 West Fourth Street, 115 Vine Street, 4 Bryant House, and foot of Broadway (Spencer House Block) and at all principal Ticket Offices in the South and Southwest.

W. B. SHATTUCK,
General Southern Agent.

WM. B. BARR,
Gen. Pass'r Agt.

Best Route to St. Louis and Chicago

**INDIANAPOLIS,
CINCINNATI
—AND—
LAFAYETTE RAILROAD**

Or Through Passenger Route from CINCINNATI to

**ST. LOUIS,
CAIRO,
CHICAGO,**

Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 pm
St. Louis and Springfield Express....	7.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	3.35 pm
Lawrenceburg Accommodation.....	4.0 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnett House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the L. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7:00 A. M.	6:30 P. M.
do do do.....	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do.....	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do.....	2:30 P. M.	5:40 P. M.
do do do.....	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do.....	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do.....	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do.....	.....	6:50 A. M.

Trains run **SEVEN MINUTES FASTER** than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnett House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
SAM'L STREPHENSON, Gen'l Ticket Agt.
Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent,

Pittsburg, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati **7.20 A. M.** Daily (except Sundays). Stops regularly at Walton, Elletts, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville **12.05 P. M.**

No. 6 SOUTHERN FAST LINE leaves Cincinnati at **1.20 P. M.** Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville **5.20 P. M.**

No. 8 MAIL leaves Cincinnati **5.00 P. M.** Daily (except Sundays). Stops regularly at Walton, Elletts, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville **10.00 P. M.**

No. 10 NIGHT EXPRESS leaves Cincinnati at **11.15 P. M.** Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged at Walton, Verona, Elletts, Glencoe, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at **5.00 A. M.**

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at **6.14 P. M.**, Lexington **7.45 P. M.**, QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEFFEE, Gen. Ticket Agt.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Esan with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
H. W. BROWN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors
T. WRIGHTSON, - - - - - }
A. J. HODDER, - - - - - }

CINCINNATI, THURSDAY, JANUARY 12, 1871.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

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WRIGHTSON & CO., Props'rs.

The Mineral Region of Ohio, and its Development.

In the recent report of the Secretary of State are tables of the production of iron and coal. The Secretary says, what is certainly true, that the amounts reported to him are not more than half the real amount. At the same time, these tables will show *relatively* the increase; for they are probably not more deficient in one year than in another. The following statistics given by the Secretary will furnish a basis for some conclusions on this subject:

The returns of iron manufacture for the year show the following result:

Pig iron manufactured, 211,074 tons. Of this 74,221 tons were smelted with charcoal, and 136,853 tons with stone coal. Bar and nail iron, 27,585 tons; nails, 8,271 tons; hoop iron, 498 tons; sheet iron, 648 tons; stoves, 8,631 tons; car wheels, 3,507 tons; other castings, 10,711 tons; spikes and railroad chairs, 706 tons; railroad iron, 9,167 tons. A comparative view of the pig iron manufactured in a series of years is shown in the following table:

Year.	Tons of Iron.
In 1840.....	25,950
In 1850.....	52,658
In 1860.....	105,500
In 1863.....	50,704
In 1864.....	62,536
In 1865.....	63,991
In 1866.....	81,790
In 1867.....	167,591
In 1868.....	207,746
In 1869.....	211,074

The following counties are reported as engaged in the manufacture of pig iron: Columbiana, 18,377 tons; Cayaboga, 3,150

tons; Gallia, 2,105 tons; Hamilton, 100 tons; Jackson, 11,024 tons; Jefferson, 12,261 tons; Lawrence, 6,250 tons; Mahoning, 41,721 tons; Muskingum, 1,624 tons; Ross, 2,028 tons; Scioto, 6,225 tons; Stark, 8,900 tons; Trumbull, tons; and Vinton, 12,505 tons.

Hamilton has no iron in it, and iron is manufactured in Erie, in Tuscarawas, and largely in Hocking counties, not mentioned above. Iron—that is, pig metal—is now manufactured in eighteen counties, and it is produced in at least twenty.

To the above tables we add those of the Commissioner of Statistics (E. D. Mansfield) up to the year 1860 inclusive:

In the following tables will be found the results of twenty years experience:

	Furnaces.	Tons Pig Iron.	Hands.	Value.
In 1840...	19	25,959	1,257	\$ 648,975
In 1850...	35	52,658	2,415	1,255,850
In 1860...	59	105,500	5,000	3,171,000

Increase since 1850, 100 per cent.

The increase of furnaces since 1840, and the centers of iron mining, may be seen from the following comparison by counties, viz:

	In 1840.	In 1860.
Gallia.....	0	1
Hocking.....	0	3
Jackson.....	1	12
Lawrence.....	10	14
Mahoning.....	0	7
Scioto.....	5	9
Vinton.....	0	6

Counties having 16 furnaces in 1840 now have 52; and the counties of Hocking, Vinton, and Mahoning, which had no furnaces in 1840, now have 14. The county of Jackson, which had 1, now has 12. One half the pig iron made in the State is made in the two counties of Jackson and Lawrence. There is a large belt of iron, comparatively untouched, because it is more remote from the rivers and railroads. In time, it will gradually come into use.

The number of furnaces now in Ohio (1870) is about 80. The greatest increase has been in the Mahoning region; and that increase has added immensely to the increase of the city of Cleveland. If the men of capital in Cincinnati, who really desire to increase the trade and prosperity of Cincinnati, would go 100 miles East, in the counties of Perry and Athens, (both connected with Cincinnati by rail,) and there develop the mines of iron and coal, they will do more for Cincinnati than can possibly be done in any other way.

If any one wants to be enlightened on this subject, let him read the following paragraph, (being an account of the commerce of Cleveland, embodied in the Secretary of State's report for 1869,) and it will show him what a little more expenditure of capital can do:

IRON ORE AND PIG IRON.

Owing to a prolonged strike of the coal miners in the Mahoning and Shenango valleys, early in 1868, it is estimated that the production of pig iron at this point was lessened at least 30,000 tons. There are forty-five furnaces whose ore is received through this port, and fifteen have Cleveland shareholders, nine of which are controlled

here. There are seventy furnaces which make their ore contracts and settlements at Cleveland. Of these, four use anthracite coal, seven use charcoal, the rest bituminous coal or coke. There were seven furnaces built in 1868. The largest proportion of the pig iron used by the various iron works at Cleveland is bought directly from the makers, and the consumption can not be accurately stated. The quantity sold by commission dealers is 19,019 tons, of which 12,012 tons were charcoal and 7,037 tons bituminous irons.

IRON WORKS.

The following exhibit shows the amount of iron produced during the year 1868:

	Tons.
Pig iron.....	11,037
Railroad iron.....	22,344
Merchant iron.....	11,396
Boiler, tank, and sheet iron.....	2,676
Forgings.....	4,125
Nuts, washers, rests, nails, and spikes.....	5,607
Machinery castings.....	18,250
Wire.....	865

The consumption of coal and coke, as nearly as can be ascertained, was about 225,000 tons. There are some fourteen rolling mills in operation in and about the city, having some two hundred puddling furnaces and a daily capacity of four hundred tons of finished iron, not including the rails, spikes, nuts, bolts, horse-shoes, etc. Several of these mills own their own blast furnaces, and nearly all have coal mines of their own.

This is a wonderful exhibit for so new a town as Cleveland, and almost all of it has grown up in the last ten years. There are 6,000,000 bushels of coal used in Cleveland for the sole purpose of manufacturing iron. In the above statement of the Secretary there are 3,150 tons of pig iron set down to Cayaboga county, while in 1869 there were 11,937 tons made in Cleveland. We shall not here dwell particularly on the advantages Cincinnati has, but we undertake to say that, beginning ten miles east of the Scioto, and going to within ten miles of the Muskingum, there is a far greater deposit of iron and coal, of the very best quality, than there is in any other part of the State.

The furnaces in the State, as given under the census and by the Commissioner of Statistics, are as follows:

In 1840.....	19
In 1850.....	35
In 1860.....	59
In 1870.....	80

The increases of furnaces does not show the whole truth. In the last ten or twelve years, the product of a furnace, under the improved modes of manufacture, has doubled, so that the furnaces are not a criterion. If there be, as we suppose, at least 80 furnaces, the product of pig iron exceeds 300,000, and we think that is little enough.

Of the amount of coal consumed we have no certain data. The Secretary of State has failed in getting anything very definite. Still he gives a table, which shows something of the rate of increase:

A comparative view of the amount of stone coal mined in Ohio, for a series of years, is given below:

	Bushels.
In 1863.....	26,887,899
In 1864.....	40,527,291
In 1865.....	34,290,359
In 1866.....	42,130,021
In 1867.....	46,703,820
In 1868.....	55,264,392
In 1869.....	51,955,057

Upon this subject the Secretary remarks:

"In my last report I expressed the opinion that these estimates were all too low. Upon further investigation, I am satisfied that not a quarter of our coal production is given in the above statement. To illustrate: Hocking county is reported as mining during the year 1869 but 27,898 bushels of coal, while I have information, entirely reliable, that Peter Hayden, in his mine in Greene township of that county, mined during the year 1869 2,100,000 bushels. We must await some better system of collecting statistics of this vital branch of productive industry before instituting comparisons, or venturing any comment."

With a good deal of experience in getting this class of statistics, we agree with the Secretary that not more than one-fourth of the coal produced in this State is represented in the above table. But the table is probably correct in representing that from 1863 to 1869 (inclusive) the production of coal has doubled. In 1860 no coal was reported as mined in Greene township (Hocking), to which the Secretary refers; but in Ward township 450,000 bushels were dug. This example shows what prodigious errors get into our statistics of entry.

The slowness and neglect of Cincinnati in aiding mining interests is very singular. To say nothing of New York, all the Eastern cities have advanced immense amounts of capital to forward the interests of mining and manufactures. Boston, Philadelphia, and Baltimore, all have advanced great capitals to mines, railroads, canals, factories, etc., and the result has been the building up of those cities far beyond what they could have been without such aid. In about thirty years, the coal and iron of eastern Pennsylvania have been developed by Philadelphia; and Philadelphia has this day 200,000 more people than she could have had without it. Cincinnati has done about nothing; \$1,600,000 subscribed to four railroads is all that has been done in thirty years. Wealthy citizens have done almost nothing, and hence they must be content to see the sluggish way in which almost everything drags along.

The Southern Road.

If an intelligent foreigner should happen to remain in our city a few days, and should learn that we were proposing to expend ten millions of dollars in the construction of a railway that would cross the State of Kentucky, he would very naturally inquire what Kentucky, or that part of it at least that was

directly interested in this important work, was going to contribute towards it; and when told that nothing was required of them, or even asked beyond the legal authority to purchase lands at fair prices for right of way, depot ground, and such other uses as will be necessary for the business of this railway, he would unquestionably think that Cincinnati is a generous city, and that the State of Kentucky is about the most fortunate one in the country.

It is not often, indeed we do not know of another case, where a responsible party has offered to expend so vast a sum of money for the benefit of the people of another State and the development of their material interests, unsolicited by them, and without costing them money or trouble. As a general thing, such schemes originate with the people of the country to be benefited by them, or they are required to sustain a certain portion of its costs, or in some way or another bear a share of the burdens such an undertaking necessarily imposes upon some one. We know—and so does every one who has the least knowledge of such improvements—of towns, villages, cities, and counties offering bonuses in money, and all sorts of privileges, as inducements for capitalists to engage in the construction of works of much less importance than this one. There is not a State in the Union in which there is not some kind of attraction thrown out to secure capital for public improvements; and even the nation has deemed it her interest to concentrate money in such works by the issuing of millions of dollars of bonds, and the donation of large sections of her domain.

This is the case to a greater or lesser extent, according to circumstances, all over the civilized world, and our visitor is therefore justified in his conclusions.

But when he is informed that, instead of encouraging the expenditure of these millions of dollars and the speedy completion of this railway, that the Legislature of Kentucky have once forbidden it, and are again chaffering over the question, and that some of the people who must be largely benefited by its construction are angry about it, and doing all they can to prevent its success, he must conclude that Kentuckians are strange pieces of humanity, and for some unaccountable reason are unlike the rest of mankind, who are generally ready to take what others are willing to give. He would undertake, if a thinking man, to hunt up the cause of this phenomena, and would be the more puzzled the further he investigated, and must conclude that the State was clearly beside itself or gone stark mad. But when he found the reasons assigned for this opposition, he would certainly consider that Kentucky had been shut out from the rest of the world, and that her people knew nothing of the progress of the States north of them, or of the business

relations of the country, and that they were lagging along about half a century behind the times, and without the remotest prospect of ever catching up.

A narrow and selfish policy just now will be most fatal to Kentucky. She wants money; men experienced and energetic in these public works; the unfolding of her great natural capabilities; her labor stimulated into productive activity; her lands and products in greater demand, and therefore advanced in value. Any measures that will produce these results, one would suppose the people would move heaven and earth to secure, and give such expression to their wishes that there could be no mistaking or compromising them, and as would intimidate their weakest-kneed representative from shirking his duty, and the most unprincipled from hartering the interests of his constituents away.

The Growth of Cities.

The rise and growth of cities is a curious and sometimes not an unprofitable study. In the earlier times the principal cities of the old world arose and flourished under the sluggish forces of that period. Soil and climate had something to do with their origin, but the institutions, governments, laws, and rulers, much more. Most of the modern cities of the continent of Europe grew under the iron rule of despotism. Petersburg, Berlin, and Vienna, are the outgrowth of monarchical influences; Rome of the hierarchy; Paris of taste and fashion; and London of her aggregated capital, and her political influence in continental quarrels. Capital concentrated there in consequence of its isolation from the continent; the safety of England was guaranteed, it was thought, by its great navy and other military preparations, until it has become the world's monetary center. But until the introduction of the modern disturbing influences—until the world's momentum was accelerated by the introduction of steam, the railroad, and the telegraph—the growth of these cities was only by the natural increase. The population of the world was comparatively stationary; locomotion was tardy, wearisome, and expensive, as were all the movements of industrial products. But it is not so now—inaction has changed to motion—the world moves under the influence of these great motors—this artificial power is guided and stimulated by intelligence newly awakened and sharpened—early habit is thrown off, and the old grooves in which society moved are rubbed out and obliterated, and keener instincts govern.

Thus cities grow not now, as formerly, by natural increase, but by great leaps. Population now, owing to the increased facilities for locomotion, is no longer confined to the places of its birth—it is free to choose its place of habitation—it roams over the earth

seeking facilities for a bettered condition. Cities, as individuals, come into sharper competition; a mere fraction of advantage of one over another determines its success or failure. A leading influence is the concentration of railroad termini; another is mechanical skill; another, capital and enterprise; another, the facilities for expansion on cheap and well adapted land; another, the healthful moral influences and provision for the education of offspring. Climate has also much to do in determining a future home for those upon the wing, as has also the supply of food and the facilities for supplying raw material for the industrial classes.

These advantages are equated by the different cities. Some may have more of these particular advantages, and less of others; but it is by adjusting and comparing that the mean is found; and it may be set down as determining the success of either, that the one possessing the most of these will eventually take rank and precedence over the others.

Narrow Gauge Roads.

Mr. Edmund Wragge, the chief engineer of one of the Canada narrow gauge railroads, and a gentleman of experience in railroad construction and operation, as well as of scientific attainments, in calling the attention of the editors of the *Chicago Railway Review* to some errors in the late elaborate article that appeared in that paper upon this subject, gives some valuable information (the result of direct experiment) of the relative cost of construction and economy of operating roads of the 48½ inch and the 3-6 inch gauges. He says:

A railway similar in character of construction, through a similar country, but of a gauge of 5 ft. 6 in. instead of 3 ft. 6 in., has just been contracted for, at cash price, in this country, at a price which gives a mileage rate of \$7,000 for the same works which I have executed on the Toronto, Grey & Bruce Railway for \$3,800 per mile. These items are grading, bridging, fencing and ties,—in fact, completing everything required for preparing the road-bed ready for laying the track.

In relation to the working economy of the broad and narrow-gauge roads, he gives the following facts:

I only know of one instance where the two systems have been tried side by side under similar conditions of management, climate, etc. I mean in Norway, where railways of 4 ft. 8½ in gauge and of 3 ft. 6 in. gauge have both been constructed by the same Engineer, and have both been operated by Government under the same Manager. I have before me a Government return of the result of both cost of construction and working economy of the two systems, and the results are as follows:

	4 ft. 8½ in.	3 ft. 6 in.
Cost of construction, per mile.....	\$26,343	\$17,143
Receipts, per mile.....	27,600 alike	27,321
Maintenance, per mile.....	7,173	6,565
Locomotive expenses, per mile.....	9,426	5,760
Do. per locomotive, mile.....	5.22	4.50

while the actual total of the working expenses has been 8 per cent. less on the 3 ft. 6 in. gauge than upon the 4 ft. 8½ in. gauge. These are taken from an average of six years working; and from personal knowledge I can state that the conditions of working and nature of traffic are sufficiently assimilated to render the comparison a valuable one.

And he closes his brief but interesting letter by saying:

I am not a narrow gauge enthusiast, but what I do believe, and what is gradually becoming the belief of many others, is, that there are numerous districts which have lain fallow for many years, and which are likely to remain so for a still longer period, unless they are developed by some such inexpensive and valuable pioneer as a narrow gauge road. I believe the day is not far distant when thousands of miles of these roads will extend over the length and breadth of this vast continent, lending their aid in the mighty work of civilization and progress.

Something New.

A SHORT LINE MAN IN LUCK.

A late number of the *New York Herald*, announces the arrival in that city of our fellow townsman R. M. Shoemaker, well known among us as a railway contractor, but better known through the country as the "Short Line Railroad," and says that Mr. Shoemaker has recently been elected to Congress from Ohio.

We know Mr. Shoemaker well, and can bear testimony to his merits for such an exalted position, but we had not heard of this good luck before, nor, upon inquiry, do we find that any of his numerous friends were aware of it.

It is probably a silent tribute from his admirers in and about Lebanon. Poor fellow, we hope he will bear his honors well.

THE NEW RAILROAD BRIDGE AT PARKERSBURG.—The great iron railroad bridge over the Ohio river at Parkersburg, West Virginia, connecting the Baltimore and Ohio Railroad and the Marietta and Cincinnati Railroad, was completed Saturday last, and the first train passed over it Saturday. Regular freight and passenger trains between Baltimore and Cincinnati and the West have used the bridge, making time from this city to Cincinnati about twenty-four hours.

A GOOD SCHEME.—The Dayton & Mineral Region Railroad Company have filed a certificate of incorporation. The proposed road is to extend from Dayton through the counties of Montgomery, Greene, Clarke, Madison, Fayette, Franklin, Pickaway, Fairfield, Perry, Morgan, Muskingum, Noble, Guernsey, Monroe and Belmont to Bellaire, in the county last named. The capital stock is \$2,500,000; shares, \$50. The corporators are William Spencer, Dixon Brown, W. M. Rea, John H. Kelly and James Taylor. The road is to be built next season.

The Wheeling, Hopedale & L. S. R. R.

HOPEDALE, HARRISON Co., O., December 25.

Your readers in this section of Ohio, no doubt, would like to know what the prospects are for building the long talked of railroad from Wheeling to the lakes. Some months ago some Eastern capitalists made a proposition to build short lines of railroad into the coal regions, agreeing to furnish \$15,000 per mile, provided the farmers and others interested would give the right of way and subscribe \$10,000 in addition. The citizens of Hopedale and vicinity accepted the proposition and have secured some \$70,000, and the right of way through a great majority of the farms from this point to the Ohio river, a distance of 25 miles. The right of way is partly secured west of this. No difficulty will be met with. The route as compared with others is a very practical one, having but one dividing ridge to cross, fewer tunnels and less heavy bridging than any other route yet surveyed. The section of country through which the road would traverse is the finest in Eastern Ohio; coal on every farm almost the entire length of the first fifty miles, the veins of which are from four to seven feet in thickness. The road bed would be under the coal, so that the expense of loading would be very materially lessened. The route, as projected, would cross or make connection with almost every railroad in Ohio, connecting with the B. & O. Railroad at Wheeling, the river road at Bridgeport, crossing the Cadiz branch, the P., C. & St. Louis at Dennison, the Cleveland & Pittsburgh branch at New Philadelphia, the P., Ft. W. & Chicago at Wooster, the Mansfield & Sandusky at Monroeville, and Lake Shore Roads at Toledo—would undoubtedly make a paying road to all stockholders, as it would open up a good market for the iron ore and lumber of the North-west, and would open up a market for the inexhaustible supply of coal, "black diamonds of untold wealth," that lie hidden beneath these hills and only await development, and this can only be done by the energy and perseverance of the friends of the route, and the people at each end, who, if they do not become divided, will secure the advantages of a short line between Baltimore and the lakes, making it almost an air line, via Hempfield road, from Wheeling, shortening the distance fully seven miles over any other route, from Chicago, East to Washington or Baltimore. The city of Wheeling has, by her Council, asked the Legislature to grant her permission to take \$200,000 stock to assist in building this road. So that, taking the whole amount pledged up to date, it is over \$1,000,000, leaving some \$250,000 yet to secure. But the committee feel sanguine the stock will soon be taken. Capitalists and others desiring to make investments are asked to take this matter into consideration and help build this road.

Hopedale is a thriving village seven miles east of Cadiz, with one of the best schools in the State, the advantages of which should not be underestimated. It is controlled by an excellent board of teachers; the inhabitants are opposed to any kind of intoxicating drinks, to be sold inside the corporation or vicinity, yet we are sorry to say it is occasionally done on the sly. There is plenty of room for building, and lots can be obtained on reasonable terms. We want men of energy, of capital and of influence to come and build up our manufacturing interests. We are in the heart of the best wool growing region of

the States. A woolen factory would pay well, and the ground necessary to put up such an establishment will be freely given, besides material help.

Yours, A. B. PAUL,

Secretary Railroad Committee.

—Cincinnati Gazette

Railroads in the United States.

There is no central bureau in the United States having cognizance of the great railroad interests of the country. Only a few of the larger States demand any returns from the companies owning works, and these are neither uniform nor as full and definite as they might be. In this respect the United States stands alone, every other country of the world demanding complete historical and statistical details of works projected, in progress, or in operation at annual periods. It would be well for the companies and the public that this defect in our system (or want of system) should be remedied by the establishment of a central office, the duty of which should be the collection, arrangement, and elaboration of all returns which a stringent law might call for.

The want of such a central point of information makes it a very difficult matter for a single individual (notwithstanding he may have accumulations of material covering the whole period of American railroad history) to bring together the details of the hundreds of railroads now existing, or even to state their length and cost. Our annual attempts to do the latter have been more or less imperfect, and we have always told our readers that our summaries are only approximate. With the rapid increase of companies and enterprises, the difficulty here complained of is increased; and so our tables become less and less reliable. We have done our best in the matter, however, and have come as near the truth as our means would allow of.

With these few remarks we introduce our annual statements: *first*, in the aggregates of States and Territories, and *second*, in detail or by separate works.

The following tabulation shows the distribution of mileage and cost of railroads in the several States and Territories:

States and Territories.	Length in Miles.	Cost of Road & Equipment.
Total	Open.	
Maine.....	972.01	810.31
New Hamp.....	987.29	734.75
Vermont.....	658.41	618.41
Massachusetts.....	1,729.62	1,475.47
Rhode Island.....	135.80	135.80
Connecticut.....	977.87	728.75
	5,470.40	4,506.49
New York.....	5,453.74	3,892.38
New Jersey.....	1,241.30	1,001.60
Pennsylvania.....	6,312.96	5,056.06
Delaware and East Maryland.....	588.64	390.10
Maryland (West).....	840.31	495.49
West Virginia.....	711.75	374.75
	15,078.73	11,300.62
Virginia.....	2,253.31	1,465.96
North Carolina.....	1,574.17	1,178.17
South Carolina.....	1,438.17	1,138.67
Georgia.....	2,312.70	1,912.70
Florida.....	607.30	440.20
	8,186.55	6,155.70
Alabama.....	2,120.40	1,396.00
Mississippi.....	1,117.39	977.80
Louisiana.....	944.50	478.50
Texas.....	4,071.59	605.50
Arkansas.....	1,051.00	226.00
Tennessee.....	2,016.05	1,490.05
Kentucky.....	1,375.41	707.37
	12,699.29	6,201.25
Ohio.....	4,501.97	3,631.99
Michigan.....	2,929.31	1,733.36
Indiana.....	4,465.20	3,277.60
Illinois.....	8,413.35	5,423.10
Wisconsin.....	3,142.20	1,475.20
	24,614.08	15,547.35
		\$701,760,029

Missouri.....	4,573.42	2,140.13	\$176,653,464
Kansas.....	3,698.00	1,501.01	55,723,703
Colorado.....	1,268.00	368.00	17,400,000
Iowa.....	4,472.25	2,550.25	111,378,000
Nebraska.....	1,215.00	584.00	39,300,000
Wyoming Territory.....	492.00	492.00	47,700,000
Minnesota.....	2,654.00	972.00	24,720,000
Montana and Idaho T.....	700.00		
	19,652.67	8,611.38	\$413,785,164

California.....	3,293.60	990.6	\$70,624,582
Nevada.....	1,493.00	593.00	60,601,000
Utah Territory.....	404.00	364.04	49,000,000
Oregon.....	2,645.00	159.50	6,100,000
Washington Territory.....	420.00		
	8,259.10	2,113.0	\$185,724,582

RECAPITULATION.

N. E. States.....	5,470.40	4,506.49	\$199,658,090
Middle States.....	5,775.73	11,301.62	680,589,976
S. E. States.....	8,186.55	6,155.70	174,519,382
Gulf and S. W. States.....	12,699.29	6,201.25	217,348,686
Interior east of Missis- sippi.....	24,614.08	15,517.35	701,700,029
Interior west of Missis- sippi.....	19,662.67	8,611.38	413,785,164
Pacific States.....	8,259.10	2,113.0	185,724,582
Grand Total.....	93,970.82	54,435.49	\$2,573,425,169

In the following table is shown the increased mileage and costs of railroads in the several sections during the year 1870.

	Miles of Road— Projected, Opened, & Equipment	Cost of Road & Equipment
Nor h East.....	501.4	231.73
Middle East.....	531.54	509.53
South East.....	436.69	318.22
Gulf and South West.....	1,215.36	907.22
Interior { E. Missis.....	3,497.1	1,449.05
{ W. Missis.....	6,421.10	1,731.05
Pacific.....	2,187.00	428.00
Total increase.....	15,603.44	5,574.80
		\$2,419,6390

Though this increase is less than in 1869 by 1,013,057 miles, the results of the year, considering the drawbacks in consequence of the Franco-Prussian war, are eminently satisfactory, being an increase in mileage of 11.41 per cent., and in cost of 9.58 per cent. The average cost per mile of new road is \$160.345. This is by no means an extravagant estimate, and is probably as nearly correct as can be ascertained. The largest increase has been in the States of Illinois, Iowa, Missouri and Kansas, where railroad construction has been stimulated to the utmost by town and county subscriptions in the form of bonds. In Alabama and Georgia the companies building railroads have been encouraged by State subsidies. The same encouragement has been granted in North Carolina, but in that State with little advantage. And yet, with all the rapid development, especially in the great interior States, we are somewhat disappointed in the results exhibited in our survey. So much work had been planned, commenced and carried on, that a larger increase of mileage might reasonably have been anticipated. The difficulties in Europe, however, breaking out suddenly in the middle of the year, closed foreign markets against American bonds, and made it impossible for companies in general to negotiate their paper, or to carry forward intended or progressing works. Had peace been maintained, we doubt not but that at least 10,000 miles of road would have been the compliment of the year 1870. The average cost of railroads in the United States, including the great overland lines, which cost more than \$100,000 per mile, or about ten per cent. of the total cost of railroads, is \$17,277 per mile. But few of the great trunk roads have cost less than \$80,000 to \$100,000 per mile; while in the South the cost of railroad building, notably in the Atlantic States, has not exceeded \$20,000 to \$25,000 per mile.

The progress of railroad construction in the United States since 1827, in which year the Granite Railroad at Quincy, Mass., was inaugurated, to the present time is shown in the following table:

Year.	Miles Open.	Yearly Inc.	Year.	Miles Open.	Yearly Inc.
1827.....	3		1849.....	6,250	608
18.....	3		1850.....	7,475	1,125
1829.....	28	25	1851.....	8,589	1,114
1830.....	41	13	1852.....	11,027	2,438
1831.....	54	13	1853.....	13,497	2,470
1832.....	131	77	1854.....	15,672	2,175
1833.....	576	445	1855.....	17,392	1,720
1834.....	762	186	1856.....	19,251	1,853
1835.....	918	156	1857.....	22,613	3,374
1836.....	1,102	184	1858.....	25,091	2,465
1837.....	1,411	309	1859.....	26,755	1,665
1838.....	1,843	432	1860.....	28,771	2,016
1839.....	2,229	477	1861.....	30,533	1,762
1840.....	2,797	567	1862.....	31,779	1,156
1841.....	3,319	522	1863.....	32,771	702
1842.....	3,877	558	1864.....	33,460	1,379
1843.....	4,174	297	1865.....	34,442	982
1844.....	4,311	137	1866.....	35,351	909
1845.....	4,322	11	1867.....	36,865	1,515
1846.....	4,870	548	1868.....	38,222	1,356
1847.....	5,376	506	1869.....	42,252	3,450
1848.....	5,682	306	1870.....	48,400	6,148
1871.....				54,335	5,934

These figures show a very rapid progress. Since 1860, one-half of the present total has been constructed, and this total is equal to all the railroads of all other parts of the world in the aggregate. It is longer than the circumference of this earth. It is true that most of the railroads of Europe are furnished with two or more tracks, while in this country not more than 25 per cent. of the lines are so furnished. But in most instances these additional tracks are not required, and hence we find them only on the great trunk lines, such as the Erie, New York Central and Pennsylvania, and their immediate connections East and West. This, however, necessitates a large measure of turn-outs, sidings, &c., which may be reckoned at ten per cent. of the total length. Thus, in estimating the total equivalent single track in use, we must add 35 per cent, which makes an aggregate of 73,487 miles, and to this sum must be added about 5,000 miles of city passenger railroads, one-half of which are double tracked; and together, these aggregate a length of more than 80,000 miles of equivalent single track.

With regard to the future of railroads. With the abundance of money now in the country and its aggregation in comparatively few hands a great deal can be economically accomplished. In addition to this favorable position, peace once re-established and confidence restored, the surplus accumulations of Europe will again be at our service. The means are thus assured, and with the wonted energy of our countrymen the objective will also be attained. Looking to what is now on hand and to that suspended from circumstances of but a temporary nature, we are assured that most of the great works, projected or in progress, will be carried to completion. With moderately favoring conditions, indeed, we may, without counting ourselves prophetic, calculate that by the close of another year our completed railroads will have an extension of at least 60,000 miles. The country is now awake to the value of the railroad as the true developer of industrial progress and wealth, and hence we may expect a cumulative rate of increase in these modern highways to national development. "Progress," as we said in our last year's summary, "leads but to new demands and new enterprises." This sentiment is of universal application.

—The Toledo, Wabash & Western Railway Company has notified the New York Stock Exchange of a new issue of its first mortgage bonds—\$2,700,000—on the St. Louis division. The Hannibal & Naples Railroad Company also issues \$675,000 first mortgage bonds, which the Toledo & Wabash Company guarantees, thus increasing the liabilities of the Toledo & Wabash Company \$3,375,000.

Fortunes of Railway Officials—How they are Made—The New Jersey Central Dividend.

It is unfortunately true that there is scarcely one great corporation in ten, and especially railroads, that is not beset and devoured by parasites, in some one or other of their various shapes. The salaries of officers, though they sound large, are often but a small part of the amount annually received from all the sources. A gentleman well informed in such matters, at the time himself a railroad President, gave us the names and the particular source of revenue of the officers of several large companies. In one instance, we remember, the President had an inside contract for carrying all the barley that passed over his road; another a contract for the lumber, and several were owners of fast express companies, which proved most prolific sources of wealth. More recently the practice has become common of secretly buying largely of the stock of low priced and unproductive companies, and of merging them at much higher figures with companies of real value, to the great profit of the manipulators. Profits resulting from the purchase of lands in the vicinity of sites for machine shops and points selected for depots are looked upon as legitimate gains to those on the inside and baying the fore knowledge. Probably, however, as bald an exposure of hands in nefarious transactions of the parasite character is the recent dividend of the company lands by the New Jersey Central Railroad Company. This company, after having previously closed its transfer books, decided to divide among those who were stockholders at such closing, three millions of land company scrip, representing the lands owned by it on the line of the road, on which \$30 per share is declared to be paid up, which scrip is all owned and guaranteed by the railroad company. The arrangement is said to be as follows: Each holder of say 100 shares of stock receives \$2,000 of scrip at par, on which \$600 is declared to have been paid, which payment, of course is a fiction, and on this there remains to be paid, when called for by the railroad company, \$1,400, making the value of the dividend or privilege, if the scrip be worth par, 6 per cent. If the scrip be worth only \$70, or less, the subscriber gets nothing or may even be the loser. In other words, the stockholders of the Central Railway who were such on the day of closing the books, have the privilege of taking this scrip at the rate of 70 cents on the dollar, for 30 per cent. of their holdings, and if it is worth more than that, they get the benefit of it, while if they think it is worth less they need not subscribe at all. So that after all, it amounts to a sale of scrip to the stockholders at 70 cents on the dollar, instead of any dividend. The effect of this disinterested movement was a decline of the stock 4 to 5 per cent. in the open market. The unfairness of this transaction attracted the attention of the New York Stock Exchange, which body has declared that it shall be of no effect, as against the buyers of the stock since the closing of the transfers. And this "allotment" being made public for the first time, six days after it was made, the brokers who have been sellers of the stock since, whether for account of the President or Directors, who were cognizant of an "allotment," or for "any other man," are ruled to be liable for the "allotment," or scrip dividend, and required to immediately issue their due bills therefor.—*Philadelphia Ledger*.

Northern Pacific Railroad.

The rails were laid two weeks ago for twenty-five miles west of the junction with the Superior & Mississippi Railroad. John Ross, who has charge of the construction on this part of the line, has in use four of Otis' steam shovels, each of which cost \$12,000. The summit between Lake Superior and the Mississippi is nineteen miles from the junction, between Peach Lake and Island Lake. Here the elevation is 760 feet above Lake Superior, and 1,394 feet above the sea. The Duluth *Minnesotian*, from which we obtain the above information, describes the route beyond as follows:

"The road beyond the summit passes for seventeen miles through a hardwood forest. The present route of the railroad is a little south of west to the rabbit chain of lakes, and thence it turns nearly due south (?), and follows a line nearly parallel to the river for twenty-five miles to the Mississippi or Brainerd. The country along the line of the road from the junction out, is admirably fitted for railroading purposes; the best kind of gravel occurring at sufficient intervals to render the ballasting of the track easy, and cheap, and first class."

Brainerd, which has been adopted lately as the name of the crossing of the Mississippi, is fourteen miles above Crow Wing.

The telegraph announces that this company purchased, on the 22d inst., the property of the St. Paul & Pacific Company, comprising the main line from St. Paul westward to Willmar, and a branch up the Mississippi from a point on the main line ten miles above St. Paul to Sauk Rapids, 66 miles.

UNION PACIFIC AS A LEGITIMATE INVESTMENT.—The late break in the market appears to be due to causes independent of the intrinsic merits of the securities. The business of the road for the first four months of its current fiscal year, has been more prosperous than that of 1869. Although the gross earnings are \$243,549 less, yet in the expenses there is a reduction of \$546,564, leaving an increase in net earnings of \$303,005, at the rate of \$909,000 per annum. One of the best features of the Co.'s business is its liberal sales of lands. Within Sept., Oct., and Nov., the road has sold 58,781 acres, at an average of \$3.71 per acre, making a total from that source of \$213,391, at the rate of \$3.73,500 per annum. The principal value of this item is not so much in the direct receipts from sales, as in the circumstance that this disposal of lands to actual settlers is building up a permanent source of freight and passenger traffic along the route to steadily augment earnings. It is apparent from these facts that there is nothing in the condition of the road to cause the late decline in its securities.—*Commercial Bulletin*.

—There was filed yesterday at the office of the Secretary of State the following certificate of incorporation: "The West Branch of the Painesville and Ohio Valley Railroad. Termini, a point in Chardon township, Geauga county, and one in Hudson township, Summit county, the road passing through Geauga, Cuyahogo and Summit counties. Capital stock, \$1,000,000. Corporators: George W. Steele, H. W. Curtis, B. B. Woodbury, Harvey Cram, Aaron Wilcox, J. W. Pope, Charles K. Avery, D. T. Casement, J. S. Casement, L. S. Parmly, Horace Steele."

The Law Concerning Putting Off Passengers.

In the Cook County Circuit Court, last week, a case was tried in which Nathaniel Shelton sued the Michigan Southern & Northern Indiana Railroad Company to recover for damages (estimated at \$50,000) alleged to have been sustained by plaintiff, he having been put off the train of defendant between stations. The *Tribune* reports it as follows:

"The claim was that the plaintiff took passage at Elkhart, Ind., on the defendant's train, his destination being South Bend, on the 14th of April, 1868. Having taken a seat, the conductor took up his ticket. He then went into another car on the same train, and being there, the conductor a second time demanded his ticket or fare; he informed the conductor that he had already delivered his ticket, but, notwithstanding this, the conductor stopped the train and caused him to be put off it, at a point some miles distant from a station. He reascended into the cars as the train started, and then (he alleged) he was kicked from it while the car was in motion. He fell to the ground and was so injured that his arm had to be amputated. The company claimed that the plaintiff did not at any time give up a ticket; that he was drunk, and refused to pay; that the injury to him resulted from his attempt to remount the car, and not from any attempt to put him off.

"The instructions to the jury were, in substance, that a railroad conductor is not legally authorized to put a passenger from his train on account of the passengers refusal to pay his fare merely, at any place other than a regular station; if he needs to remove a passenger, it should be at a station. But, if plaintiff (although there was a wrong expulsion,) being safely upon the ground and beyond the reach of harm, of his own rashness or negligence suffered the loss of a limb, then the injury so resulting could not be ascribed to damages by the defendant. A conductor, even if warranted in ejecting a passenger, can only use necessary force—the object to be attained being the criterion; he may not kick or abuse him. So, if he was kicked, and because he was kicked, plaintiff fell and was injured, then he could recover. But plaintiff, that he may maintain the action, must prove that he held a ticket, and offered to surrender it when called for by the conductor, or offered to pay his fare, or that in ejecting him unnecessary force was used, from which he received his injuries, added to which he must show that his own negligence did not materially aid in bringing about the result. If he had a ticket and refused to surrender it, then the conductor might eject him, even between stations, provided, however, reasonable care was taken to guard him from injury. So, if plaintiff was injured in an attempt to regain the car, it being in motion, there could be no recovery."

The jury brought in a verdict for the plaintiff awarding \$4,000. The plaintiff has made a motion for a new trial.—*Chicago R. R. Gazette*.

Florida promises to become hereafter a larger producer of cane sugar. The crop this year is a good one, and is said to be more profitable than cotton raising.

The immigration from the British American possessions last year, was over 40,000. This is a pretty good beginning towards annexation.

The Business Problem of the Hour.

How is it that, with the most beautiful crops, with nothing on the political horizon to disturb our peace, and with a public debt diminishing at the rate of upward of a hundred millions annually, there should be so general a complaint of unremunerative business? Every thing appears to be at a stand still, waiting, Micawber-like, for "something to turn up." Mechanics, manufacturers, and merchants all complain that it is difficult to sell their wares and merchandise at sufficient profits to pay rents, expenses, and taxes, and support their families. Such a state of affairs can not continue long. People can not always subsist on debt; they may do so for a time, or may live on the profits of the past for a short season, but there must be an end of going behind-hand. The evil is palpable, and is felt by all but the very rich.

It is folly to talk about prosperity when we know that the industry of the country is not prosperous. Perhaps no two men will agree as to the causes of or the remedy for this state of things, but our opinion is, that business is at a stand still because the prices of every thing are too high; and though what we call money—that is, currency—is abundant, it costs too much to conduct business and produce merchandise; it costs too much to live; every thing, in fine, is on too expensive a scale.

Men dwell in brown stone mansions at the west end who should live in plain three story brick houses, with more comfort and less show, in more modest neighborhoods. The "shoddy" days of high prices, extravagant living, and meretricious show are past, and the great body of the people should return to the good old-fashioned ways and means of existence. That if a community makes less money it must spend less, is as certain as any physical fact. The process of returning to a currency redeemable in specie renders the diminution of gains inevitable; all will accumulate less than in a time of expansion, and must distribute less, and this sacrifice will have to be made sooner or later, while the sooner it comes the less will be the pressure. It is but history repeating itself. Every nation that has abandoned the specie basis and resorted to paper money exhibits precisely the same experience. Prices have been kept up, while profits and earnings have been diminished; so, to restore the balance, a juster relation must be established between earnings and prices. Such a state of things, we know, is unpleasant to think of, much less to realize, yet it will have to be met.

The return from the inflated delirium of the past to present sober reality, like most processes of transition, will be attended with many discomforts; but the change will be for the better. We have been in the seventh heaven long enough, and it is about time that we should descend, and stand once more upon terra firma. We repeat what we said in the beginning—the price of every thing must come down. We know that it is difficult for a man who had thought himself worth fifty thousand dollars to awake from the delusion and find himself only worth twenty-five. Still he may not be so badly off; and if he should find that the income from his twenty-five thousand has as much purchasing power for all the comforts and necessities of life as had previously the income from the fifty, he need have no regrets. If we would have the country restored to prosperity, with all of her great industries active and remunerative, we must get back to normal times, and above all must

have a currency redeemable in coin, so that the slightest overtrading in our intercourse with foreign countries will be instantly checked by the necessity which the banks will be under to furnish the adverse balance in coin, and will not be able to pay it by mere evidences of debt.—*Philadelphia Public Record.*

—A railroad is projected in Brazil, which will be of great benefit to the commerce of the United States. It is to be called the Madeira and Mamore Railway, and will extend from San Antonio to Guajara-Merim, a distance of about 170 miles. Its object is to furnish transportation of goods going to and from Bolivia, around the falls of the Madeira river, which are an insuperable obstacle to navigation, and now compel traffic to take an unnatural and expensive route over the Andes to Peru. It costs \$200 in gold to carry a ton of freight by this route from Europe to Bolivia; whereas, when the projected railroad is completed, it will go by the way of Paris, costing only one third as much, and still yielding a handsome profit to the carriers. The region which will thus be opened to American as well as European merchants is highly productive, and contains a large population, so that its trade will be extremely valuable.

MASON'S AND DIXON'S LINE.—On the 4th of August, 1763, Thomas and Richard Penn and Lord Baltimore being together in London, agreed with Charles Mason and Jeremiah Dixon, two mathematicians or surveyors, to mark, run out and fix the boundary line between Maryland on the one hand, and Delaware and Pennsylvania on the other. Mason and Dixon landed in Philadelphia on the 15th of November following, and began their work at once. They adopted the peninsular lines; and the radius and tangent point of the circular, of their predecessors. They next ascertained the north east coast of Maryland, and proceeded to run the dividing parallel, a distance of 230 miles, 18 chains, and 21 links from the place of beginning at the N E corner of Maryland to the bottom of a valley on Drunkard's creek, where an Indian war path crossed their route, and here on the 9th of November, 1767—103 years ago—their Indian escort told them it was the wilds of the Sioux Nation, that the surveys should cease, and they terminated accordingly, leaving 35 miles, 6 chains and 50 links, as the exact distance remaining to be run west to the south-west angle of Pennsylvania, not far from the Board Tree Tunnel on the Baltimore and Ohio Railroad. Dixon died at Durham, England, 1777; Mason died in Pennsylvania, 1787.

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Quarto
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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27

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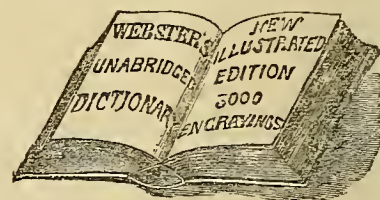
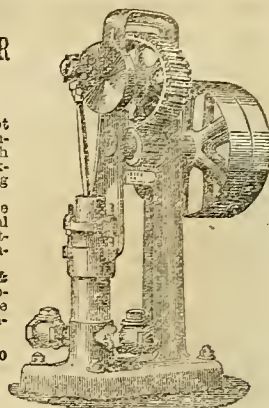
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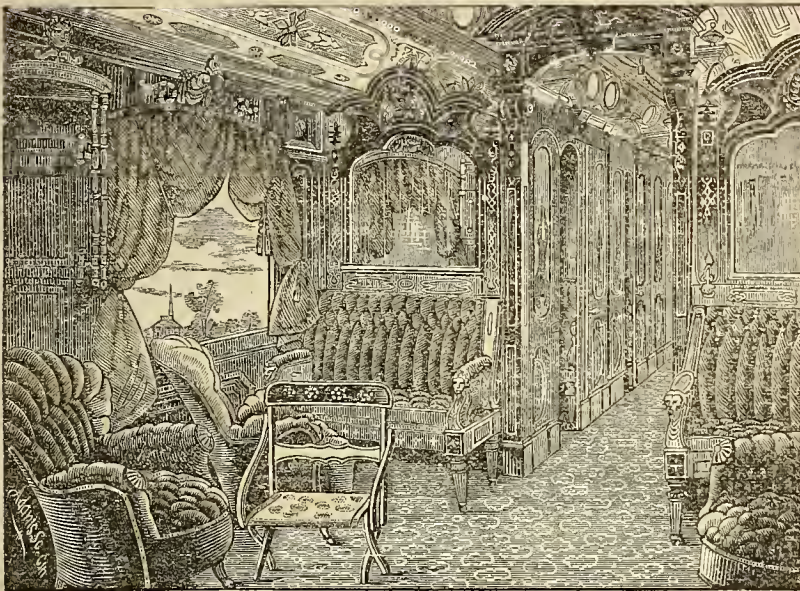
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ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS

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	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 pm
St. Louis and Springfield Express....	9.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 pm	2.35 pm
Lawrenceburg Accommodation.....	4.50 pm	8.25 am

*The 10.50 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrisburg Accommodation.....	5.50 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile newer than the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

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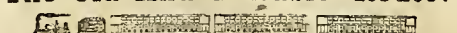
	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7.40 A. M.	6.30 P. M.
do do do.....	9.45 P. M.	7.40 A. M.
Toledo, Detroit & Canada.....	7.15 A. M.	10.25 P. M.
do do do.....	6.30 P. M.	7.40 A. M.
Lima Fort Wayne & Chicago.....	7.15 A. M.	10.25 P. M.
do do do.....	2.30 P. M.	5.40 P. M.
do do do.....	6.30 P. M.	7.30 A. M.
Sandusky, Cleveland & Buffalo.....	7.15 A. M.	5.40 P. M.
Springfield Accommodation.....	9.20 P. M.	10.30 A. M.
Sandusky, Cleveland & Buffalo.....	6.30 P. M.	10.25 P. M.
Mancie & Indianapolis.....	7.15 A. M.	1.20 P. M.
do do do.....	5.40 P. M.	1.20 P. M.
Hamilton, Eaton & Richmond.....	7.15 A. M.	10.25 P. M.
do do do.....	5.40 P. M.	10.25 P. M.
Hamilton Accommodation.....	9.30 A. M.	8.45 A. M.
do do do.....	6.50 A. M.	

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SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati **7.20 A. M.** Daily (except Sundays). Stops regularly at Walton, Eliston, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Genoa, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville **12.05 P. M.**

No. 6 SOUTHERN EAST LINE leaves Cincinnati at **1.20 P. M.** Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville **12.05 P. M.**

No. 8 MAIL leaves Cincinnati **5.00 P. M.** Daily (except Sunday). Stops regularly at Walton, Eliston, Genoa, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville **10.00 P. M.**

No. 10 NIGHT EXPRESS leaves Cincinnati at **11.15 P. M.** Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Eliston, Genoa, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at **5.00 A. M.**

No. 6 connects at Lagrange with the Lexington Train, arriving at Frankfort at **6.14 P. M.**, Lexington **7.45 P. M.**, QUICK TIME.

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Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Matoney City, Tuckaunock &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Ohio Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:10, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:10, 7:2, 7:40, 8:10, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.
W. ALDRIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - -
A. J. HODDER, - - - - -

CINCINNATI, THURSDAY, JANUARY 19, 1871

The Railroad Record,

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The Geologists and Their Work in Ohio.

Dr. Newberry's report on the Geology of Ohio is published, and contains many valuable facts. Dr. N. thinks, as we do, that there is a good deal of poetry in the natural fabric of nature. One of the first paragraphs we meet with is the following on the coal formation:

"Coal is also not without its poetry. It has been formed under the stimulus of the sunshine of long past ages, and the light and power it holds are nothing else than such sunshine stored in this black casket, to wait the coming and serve the purposes of man. In the process of formation it composed the tissues of those strange trees that lifted their scaled trunks and waved their feathery foliage over the marshy shores of the carboniferous continent, where not only no man was, but gigantic salamanders and mail-clad fishes were the monarchs of the animated world."

This is quite poetic, and like most poetry derives its chief charm from being wholly fictitious. But the point which interests us is the *practical*, and we would here refer to the immense, and in fact unsurpassed advantages of Ohio for the manufacture of iron, salt and wool. The first element of any success in manufacturing is an *unlimited supply of good coal*. This Ohio has remarkably in both variety and quantity. All the coals of Ohio are *bituminous*; but for nearly all purposes this is the best coal. There are three principal kinds of coal economically considered.

1. There are dry, open-burning or furnace coals; 2. cementing or coking coals; 3. cannel coals. The first include those which do not melt or coke, and may be used in the raw state for the manufacture of Iron, and for

manufacturing purposes this is the best kind. The second to a greater or less degree melt or agglutinate, hence choke up furnaces and can not be used without coking. The third, "cannel" coals, are more compact, and contain a larger portion of volatile matter, hence are chiefly valuable for household purposes.

"In Ohio, it chanceth that the lowest stratum in the series is generally a furnace coal. Along its northern line of outcrop this is known as the "Brier Hill coal." This coal enjoys a deserved celebrity for its adaptation to the manufacture of iron, and now furnishes the fuel by which half the iron produced in the State is made. In consequence of the structure of our coal basin, this coal stratum, underlying all the others, and dipping towards the south and east, is, for the most part, covered by the overlying rock. As a consequence, up to the present time it has been worked only along its line of outcrop, and the great area it occupies below drainage is almost untouched. It is plain, therefore, that the time is not far distant when our people will be driven to reach and work it by shafting. In Ohio we have as yet sunk but two or three shafts to reach seams of coal, and these to no great depth; while nearly all the coal mined in Great Britain is obtained by shafting—sometimes to the depth of 2,000 feet."

Here is an important fact. Notwithstanding the already great consumption of coal in Cincinnati, yet scarcely a dent has been made on the surface. There can be little doubt that shafts sunk to some of the lower seams would produce even richer coals than we have, and it is certain that coal would be found much more convenient to our great towns than the mines now are. The cost of getting coal by shafts from 200 to 1,000 feet deep is but little greater than getting it in the present manner.

But the most important fact of geological research in Ohio, is in discovering and developing the best localities of iron in Ohio, in connection with the coal to work it. Dr. Newberry says:

"In most countries certain varieties of iron ore are found associated with coal—black-band, clay-iron stone, &c.,—and in these ores Ohio is far richer than any of those States that share with her our great Alleghany coal basin. Again, our coal field is so situated, and the coal it furnishes is of such quality, that a large part of the richer crystalline ore found in other States must inevitably be brought to our territory to be smelted and manufactured."

It is exactly this that has so greatly and rapidly developed the iron manufactures at Cleveland, and which will soon bring up Ohio to the first rank of iron manufacturing States.

Iron, it is well known, is of several very distinct varieties. The richest iron ore is the "Magnetic Oreide," which contains 72 per cent. of metallic iron. This ore is found in the Eastern States, along the Adirondacks, in Canada, &c. It is the Champlain ore, and is manufactured chiefly in New York and New Jersey. The next ore in richness is the

"Specular Iron." When free from foreign matter it contains 60 per cent. of metal. Most of the Lake Superior ores and those of Missouri are of this character. This is of great importance in Ohio; for it is manufactured largely in the furnaces of Eastern Ohio. *Two-thirds* of the iron mined in the great Marquette district of Lake Superior are brought to this State and manufactured here. The product of the Lake Superior Mines is 610,000 tons per annum; and one-third of that is smelted with Ohio coal, because that is the best coal for that purpose.

Of the iron in this State Professor Newberry says:

"Within our own territory we have all the varieties of iron that are ever associated with coal, viz: blackband, kidney ore, stratified ore—or as it is called block ore—and, in less abundance, brown hematite, the hydrated peroxide of iron. Of these the blackband is a bituminous shale, largely impregnated with iron, taking its name from its stratification and black color. In its natural condition it contains from 20 to 33 per cent. of iron, but by burning off the carbon it becomes much richer. This ore is found and largely used in Mahoning and Tuscarawas counties, and is known to exist in Columbiana. Sought for by those who know it, it will undoubtedly be discovered in many parts of the State. It smelts with great facility, making very fusible iron, and such as is especially adapted to foundry purposes. The kidney ore—an earthy carbonate of iron—generally forms balls or concretions, lying in the shales of the coal formation. Where these shales have been extensively eroded, the ore is cheaply mined by "stripping;" and was the main dependence of most of our furnaces previous to the introduction of the crystalline ores. The yield of the kidney ore in the furnace will average about 33 per cent., or three tons of ore make one of iron. This ore is found, in greater or less abundance, in every country included with the coal area. The "block" ores of the coal measures vary much in purity and abundance in different localities. They are generally strata of limestone charged with iron. In the southern portion of the State, ore of this character forms a large number of distinct beds, from two to six feet in thickness, and constitutes the principal source of supply of some forty furnaces now in blast in that district."

As we have stated in a former article, there are now about 80 furnaces in Ohio; 43 of which are in the Lawrence or Hanging Rock region; and the residue, with three or four exceptions, in the Youngstown or Mahoning section. If the development of the coal section continues, the furnaces will be doubled.

The Geological Report notices very properly the immense improvements in the iron manufacture. The use of raw coal has put a new face on the whole iron manufacture. A few years ago the old charcoal furnaces were thought good when they made 50 tons per week. Now, there are, furnaces in Ohio which produce 300 tons per week, and in England, much more.

We need scarcely say that the increase of iron and coal production, will have a very

great influence on the prosperity of our railroads. Half the railroads in Ohio will be largely employed in the carriage of coal and iron, when the development of those articles shall be accomplished, as it ought to be very soon. New railroads, however, will have to be made, in order to carry coal and iron to regions which are now unsupplied. The whole south-eastern portion of Ohio is full of coal and iron; while on the other hand, the north-west of the State has neither, and can get none so good or so well as in our mineral region. Hence, such railroads as the Atlantic and Erie must be made. They are necessary, and they will at once develop a business for themselves, and in the end have the very best of railroad business, enough and profitable.

The Growth of Cities.

How Cincinnati is affected by the influences which control the growth of cities, referred to in our last issue, and what must be her future condition, is the subject which we propose to consider in the present article.

Three main influences will perhaps govern our future destiny, modified to some extent by minor ones, to-wit: 1st. The concentration of railroad termini. 2d. The power to produce domestic industrial products of equal quality at as cheap a rate as similar products can be produced by other cities. 3d. Suitable area upon which the city may expand.

To the importance of the first of these influences we are suitably aroused, as is shown by our support of a road to the South, to which we offer a contribution of ten millions of dollars. Whether our zeal for this improvement is tempered by prudence, is for the future to show. Most unfortunately we are not a railroad people. We see our necessities, but are without the experience to guide us to the right remedy. We have large means, but are deficient in enterprise and experience. We have a stagnated population, so that the movements which are to affect our future are of necessity left to be directed by parties but little interested in our welfare.

Although our city is penetrated by railroads from almost every direction, yet but two are under home control; and even these, after blighting our success for years, by a monopoly of the railroad avenues, have at length surrendered to foreign control, which may at any moment sap our prosperity by turning business away from us. These are the dangers which beset us through railroad influences. We have no bond of interest to tie them here. So long as the aggregations of trade—of domestic products center here, it doubtless will be the interest of those roads to have their termini with us, and so long we will have the facilities which they furnish; but let a rival point hold out greater inducements,—let Louisville, for instance, show that she is

central to a larger area of country, that she has facilities for domestic production which we have not, (to-wit: a vast water power,) that she has a great plain upon which to expand, room for the erection of workshops indefinitely, with land suitable for the domicile of the industrial population at reasonable rates,—then what influences have we to hold these railroads? Trade centralizes;—where trade is, there more trade goes. Buyers and sellers go where the larger numbers meet—where the greatest amount of merchandise is concentrated—the greatest assortment and variety. Our city has heretofore been the head of the market for this region—so conceded by all. Capital centered here, as did skill and enterprise. It has been the central market for agricultural products, as well as raw material for the workshop. Skilled labor has been assisted by every variety of labor-saving machinery. All economies are availed of, so that heretofore almost every kind of domestic production has been afforded at a large per centage less of cost than the same article could be produced for at other points. Hence our advantage as being the head of the market.

The second point to consider is, domestic productions—the rates at which our skilled labor and workshops can furnish as compared with other points. With all our advantages, we are losing this vital element of our prosperity. We have only to look around to Hamilton, Dayton, Springfield, Richmond, and scores of other points, to see that we are circumvented on every hand. Already these cities run up their great establishments by the score—their mills, their factories, their foundries, finishing shops, rolling mills and forges, and the thousand lesser establishments, all of which would have gravitated to this point had suitable facilities offered. What is the want? Obviously cheap land. The workshop has to stand upon land the cost of which materially interferes with cheap productions, and the operative is forced away from his labor for a domicile the average of a mile or a mile and a half, and his shelter is a single room, in a cellar or a garret, at excessive rent—hence the stampede to surrounding cities, where the advantages of comfortable homes may be had and contiguous to their labor. How is this to be obviated, or can it be? There is but a single remedy, and this is by provision of suitable avenues for access to the valley of Mill Creek north of the city, where we may have all necessary facilities for development indefinitely, and regain what we have lost by our tardiness to perceive our jeopardized position and the means and processes of recovery.

Since 1840 only 105,750 Chinamen have arrived in this country. It is estimated that there are not more than 60,000 now in the United States.

Railroad Bonds as an Investment.

Experience has demonstrated that there is no safer investment for money in the United States than the first mortgage bonds upon our railroads, and now that the government is no longer a borrower in the money market, but is freeing capital by paying off its debt, these securities are in steady demand at fair rates, and first class railway enterprises are thereby stimulated, and the country benefited by their construction.

There is no reason whatever why this will not continue to be the case with all new railway projects of merit, and as the number of such schemes, even in the old States, are largely on the increase, and the whole South, and the territory west of the Mississippi may be said to be unsupplied with railroads, and yet rapidly demanding them, capital will doubtless flow to their support, not only from the opulent parts of our own country, but from the wealthy portions of the whole civilized world.

The rate of interest these securities pay, the facts that their principal and interest are payable in coin, and at any of the commercial centers of Europe or America, and that they are of convenient denominations, and their coupons pass current among banks, and the security upon which they are based so certain, and growing in permanent value by every improvement in the country, give them a sort of universality only equaled by the securities of the British Government, or those issued by the United States during the late war.

Only a few years since these securities like other representatives of railroad values, were rather speculative interests in the money markets, mere toys for bulls and bears to play with, whose absolute worth was not known, and therefore subject to such inflations and depressions as railroad stocks now undergo. Besides, their legal status was not defined. Of the various classes of bonds and stocks issued upon railroads, and they were numerous and of strange nomenclature, the first mortgage bonds were supposed to be paramount, yet there were legal doubts as to their power. The courts had not determined whether they had priority of lien upon the property covered by them, or whether they were subject to division with other interests that had added value to the property upon which they all depended. These questions have all been settled, and there is no more doubt now about the rights of a first mortgage upon a railroad, than there is about a similar lien upon a farm.

The conclusion of this question doubtless has something to do with the prompt payment of the interest upon these first liens. The tricks of dishonest management by which the interest upon subordinate securities is passed for a time, or allowed to accumulate indefinitely, would soon change the control of such

roads if practiced upon the first mortgage bonds; consequently such managers, whatever else they may do, meet promptly the interest upon these securities, and as honestly directed railroads must pay upon these liens before they pay upon any others, if they can pay at all, and the experiment in the United States shows that out of about one thousand railroads in the Northern and Western States, carrying a bonded debt of about *six hundred and fifty-five millions of dollars*, yielding an interest of upwards of *fifty millions of dollars annually*, but three roads default in the regular annual or semi-annual payment as the case may be, of the interest upon their first mortgage bonds, and these exceptions are so small as compared with the whole, that they are hardly worth considering, and certainly can not in the least cast a shadow of a doubt upon the credit of the other railroad interests. Indeed, we do not know of any other investments, of so large an amount, and in such a number of ventures, that have not a larger number of exceptions, and that are not subject to many more contingencies to perils than these.

It is thus that first mortgage American railroad bonds have grown into popular confidence and become sought for by capital at nearly or quite their par value, and have become fixed in the money markets of the world as among the best of securities, because the most productive, and quite as certain and permanent as any others, whether national or corporate.

The promise for the new railways of the country is very flattering. The way has been well paved for them. There is no reason whatever why they may not command all the means necessary to secure their rapid completion, and upon terms that will relieve them from the excessive exactions that were imposed upon many of our earlier enterprises, and that for many years weighed them down to the verge of bankruptcy. Such new works must be directed by integrity and experience, they must go into the market for money, *clean*, and with a good local expenditure in substantial work, and with such an issue of securities per mile of road, as like works similarly situated have proven themselves capable of sustaining, and there will be little or no difficulty in obtaining it. If well presented, such securities will be sought for, and at once take their places beside those that have stood the ordeal of many a financial convulsion, and long since been recognized in the market as favorites.

Within the next ten years, it is likely upwards of two hundred millions of dollars will be wanted for the construction of new railroads in this country. The calculation is probably too low. Of this vast sum the larger part must be borrowed, and that too upon first mortgage bonds. It is encouraging to know that it can be had, and it is gratifying

to believe these just demands of capitalists are the beginning of a wholesome and much needed reform in the management of these extensive and important undertakings

Northern Pacific Railroad Bonds.

MR. EDWARD H. KNIGHT.

We received a pleasant call from Mr. Edward H. Knight, who comes to our city as the agent of the banking house of Jay Cooke & Co., and for the purpose of making arrangements to place upon our markets a part of the bonds of the Northern Pacific Railroad.

The fiscal agents of this company, Messrs Jay Cooke and Co., have completed negotiations in Europe for the sale of a sufficient number of the bonds to finish the road as far westward as the great bend of the Missouri, and they desire that the remainder of the issue be retained in America, as the investment will be more productive than government bonds, and in every way as convenient and just as safe.

The people have given this company a pretty large slice of the public domain, a trifle over twenty-two thousand acres to each mile of road, or in the aggregate, an area greater than that of the six New England States with Maryland added, or about the size of the two great States of Ohio and Indiana, and as this vast estate is included in the mortgage by which these bonds are secured, it is well enough we think, that they derive some of the profits at least, of such an investment, and not allow the entire golden income to go to Europe.

These bonds are first mortgage upon road and lands, are of convenient denominations, payable principal and interest in gold, and yield seven dollars and thirty cents per annum upon each hundred dollars, are registered and may be exchanged for coupons, or coupons may be transferred into bonds; the principal and interest may be paid in New York or in any of the financial centers of Europe, and in the coin of the various European countries as may be desired.

The agents, in their prospectus for the sale of these securities, say of the mortgage:

For the security of the first mortgage bondholders, and obedient to Act of Congress, the general mortgage covering the property named above is recorded in the office of the Secretary of the Interior at Washington. The Trustees of the mortgage are Messrs. Jay Cooke, of Philadelphia, and J. Edgar Thomson, President of the Pennsylvania Central Railroad Company. These Trustees, who directly represent the bondholders, are required by the terms of the mortgage to see that the proceeds of all sales of First Mortgage Bonds are devoted to the construction and equipment of the road, and that the proceeds of land sales are used in purchasing and cancelling the bonds of the Company if they can be bought before maturity at not more than 10 per cent premium; otherwise the Trustees

are to invest the proceeds of land sales in United States Bonds or Real Estate Mortgages for the further security of Northern Pacific bondholders. At all times until the entire bonded debt of the Railroad Company is paid off and cancelled, the Trustees are required to see that they have in their control, as security, at least 500 acres of average land to every \$1,000 of outstanding first mortgage bonds, besides the railroad itself and all its equipments and franchises.

And of the profitableness of an investment in these bonds they say:

We are not willing to admit that any investment can be safer than the bonds of the United States, which, as the Government's agents, we placed in the hands of the people of this country and of Europe. But since the Government is no longer a borrower, but is rapidly paying off its existing debt, and as the great work the nation now has in hand is not that of preserving its existence, but that of *developing a continent*, we call the attention of those who desire to increase their income, while still having a perfectly reliable investment, to the following facts:

United States 5 20's, at their average premium, yield the present purchaser less than $5\frac{1}{2}$ per cent. gold interest. Should they be redeemed in five years, and specie payments be resumed, they would really pay only $4\frac{1}{2}$ per cent., or if in three years, only $3\frac{1}{2}$ per cent., as the present premium would meanwhile be sunk.

Northern Pacific 7-30's, selling at par in currency, yield the investor 7 3-10 per cent. gold interest absolutely for thirty years, *free from United States tax*. \$1,100 currency invested now in United States 5 20's will yield per year in gold, say \$62.00. \$1,100 currency invested now in Northern Pacific 7-30's will yield per year in gold \$80.30. Here is a difference in annual income of nearly one-third, besides a difference of 7 to 10 per cent. in principal when both classes of bonds are redeemed.

With the same entire confidence with which we commended Government bonds to capitalists and people, we now, after the fullest investigation, recommend these Northern Pacific Railroad bonds to our friends and the general public.

Mr. Knight is thoroughly posted in the object of his mission, and quite intelligent upon the progress of the work, the plans of the company for its future, and the physical peculiarities of the country through which this great thoroughfare is to pass. We acknowledge our indebtedness to him for much valuable information upon this great undertaking.

THE BIG SANDY RAILROAD TO BE BUILT.—Our readers will rejoice with us when we announce, as we do now, that that great enterprise, the Big Sandy Railroad, is a success at last. The road will be built. The committee of our citizens, which has been in consultation in Cincinnati with Messrs. Cutler, Jones & Co., the contractors, returned Thursday night, and now report the contract closed for the building of the Eastern division of the Elizabethtown, Lexington & Big Sandy Railroad, commencing at Lexington and running to the Big Sandy river. Four thousand hands are to set to work about the 1st of next March, and the road is to be completed in two years.—*Lexington Observer*.

Railroads of the United States.

A Tabular Statement showing the Length and Cost of each Work at the close of the financial year ending nearest to January 1, 1871.

(Not including City Passenger Railroads.)

STATE OF MAINE.

Corporate Titles of Companies.	Total Length in Miles.	Completed.	Cost of Road and Equipm't.
1. Androscoggin.....	26.50	26.50	
Lewiston Branch.....	5.00	5.00	\$860,000
2. Androscoggin Valley (project).....			
3. Atlantic and St. Lawrence (N. H. & Vt.).....	79.0	79.00	
Branch.....	1.50	1.50	3,311,411
4. Bangor, Oldtown and Milford.....	13.00	13.00	332,447
5. Bangor and Piscataquis.....	40.00	40.00	1,200,000
6. Belfast and Moosehead Lake.....	34.50	34.50	1,350,000
7. Boston and Maine (N. H. & Mass.).....	2.50	2.50	72,103
8. Calais and Baring.....	6.00	6.00	
Branches.....	5.50	5.50	226,160
9. European and North American.....	100.00	69.00	
Oroquo Branch.....	6.00	6.00	2,719,000
10. Houston Branch.....	6.00	6.00	170,000
11. Knox and Lincoln.....	46.50	14.00	622,000
12. Leeds and Farmington.....	36.50	36.50	915,000
13. Lewy's Island.....	16.50	16.50	285,000
14. Machiasport.....	7.50	7.50	120,000
15. Maine Central.....	137.81	137.81	4,322,714
16. Newport and Dexter.....	16.00	16.00	450,000
17. Portland and Kennebec.....	63.00	63.00	
Bath Branch.....	9.50	9.50	3,400,000
18. Portland and Ogdensburg.....	48.00	22.00	1,040,000
19. Portland and Oxford Central.....	28.00	28.00	600,000
20. Portland and Rochester.....	52.00	52.00	1,800,000
21. Portland and Rutland (N. H.).....	44.00		
22. Portland-Saco and Portsmouth.....	53.50	53.50	1,646,063
23. Portsmouth, Great Falls and Conway (N. H.).....	3.50	3.50	70,000
24. Somerset.....	34.00	13.00	250,000
25. Somerset and Kennebec.....	37.00	37.00	8,000,000
Total.....	972.01	810.31	\$26,241,901

STATE OF NEW HAMPSHIRE.

1. Ashuelot.....	23.76	22.76	\$501,000
2. Atlantic and St. Lawrence (Maine & Vt.).....	54.00	54.00	2,233,717
3. Boston, Concord and Montreal.....	93.54	93.54	2,850,000
4. Boston and Maine (Mass. & Maine.).....	35.00	35.00	
Great Falls Branch.....	2.75	2.75	2,492,301
5. Cheshire (Mass.).....	49.92	49.92	2,505,352
6. Concord.....	34.53	34.53	1,700,000
Hookset Branch.....	7.00	7.00	
7. Concord and Claremont.....	27.16	27.16	692,253
8. Contooscook River.....	14.64	14.64	257,000
9. Dover and Winnepesaukee.....	28.50	28.50	440,000
10. Eastern.....	16.55	16.55	525,505
11. Fitchburg (Mass. Branch, Mass.).....	9.50	9.50	95,000
12. Franklin and Portland (project).....	22.00		
13. Manchester and Keene (project).....	38.00		3,800
14. Manchester and Lawrence.....	23.28	23.28	1,000,000
15. Manchester and North Weare.....	19.43	19.43	600,000
16. Monadnock (project).....	20.00		
17. Mount Washington.....	2.75	2.75	100,000
18. Nashua and Lowell (Mass.).....	5.33	5.33	306,507
19. Nashua and Rochester (project).....	33.00		
20. New Hampshire Central (project).....	70.00		
21. Northern New Hampshire.....	69.16	69.16	3,068,400
Bristol Branch.....	13.41	13.41	
22. Portland and Ogdensburg.....	44.00	28.00	840,000
23. Portsmouth and Concord.....	59.00	59.00	356,000
24. Portsmouth and Dover (project).....	13.00		
25. Portsmouth, Great Falls and Conway (Me.).....	22.50	22.50	300,000
26. Sugar River Valley.....	23.00		
27. Sullivan.....	24.70	24.70	1,622,250
28. Suncook Valley.....	22.82	17.50	400,000
29. White Mountains.....	49.00	30.78	450,000
30. Wilton.....	15.43	15.43	273,000
31. Worcester and Nashua (Mass.).....	6.63	6.63	239,545
Total.....	987.29	734.75	\$23,647,935

STATE OF CONNECTICUT.

1. Althol and Enfield.....	10.00		\$100,000
2. Boston, Hartford and Erie (Mass.).....	26.00	26.00	2,600,000
3. Connecticut Valley (in progress).....	44.00		440,000
4. Connecticut Western (in progress).....	65.87		658,700
5. Danbury and Norwalk.....	23.80	23.80	574,705
6. Erie and New England (N. Y.) (project).....	23.00		23,000
7. Fairhaven and Westville.....	6.00	6.00	150,000
8. Hartford and New Haven (Mass.).....	56.00	56.00	
Hartford Branch.....	0.87	0.87	
New Britain and Middletown.....	2.50	2.50	3,142,267
Middletown Branch.....	10.00	10.00	
9. Hartford, Providence and Fishkill (R. I.).....	133.60	113.50	5,675,010
10. Hartford and Wethersfield.....	9.00	9.00	210,000
11. Housatonic.....	74.00	74.00	2,105,568
12. Naugatuck.....	57.00	57.00	1,984,906
13. New Canaan.....	8.00	8.00	242,340
14. New Haven and Derby.....	13.33	13.33	1,000,000
15. New Haven, Middletown and Williamantic.....	52.00	22.00	
Norwich Branch.....	22.00		2,957,380
16. New Haven and Northampton (Mass.).....	51.44	51.44	
New Hartford Branch.....	14.90	14.90	2,584,730
Tariffville Branch.....	1.25	1.25	
17. New London Northern (Mass.).....	56.25	56.25	832,173
18. New York, Housatonic and Northern.....	29.75	5.00	248,917
19. New York and New Haven (N. Y.).....	48.11	48.11	6,122,419
Branch connection at New Haven.....	3.60	3.00	
20. New York, Providence and Boston (R. I.).....	17.00	17.00	762,991
21. Norwich and Worcester (Mass.).....	42.00	42.00	1,940,440
Allyn's Point Extension.....	7.00	7.00	

Corporate Titles of Companies.

Length in Miles.

Cost of Road and Equipm't.

Corporate Titles of Companies.	Total Length in Miles.	Completed.	Cost of Road and Equipm't.
22. Rockville.....	4.80	4.80	171,858
23. Short Line (N. Hav. and N. Lond.).....	50.00	50.00	749,432
24. South Manchester.....	6.00	6.00	100,600
Total.....	977.87	729.75	\$32,976,834

STATE OF MASSACHUSETTS.

1. Berkshire.....	21.14	21.14	\$600,000
2. Boston and Albany (New York).....	102.55	102.55	
Hudson Branch (New York).....			
Brookline Branch.....	1.53	1.55	
Newton Lower Falls Branch.....	1.25	1.25	
Saxonville Branch.....	3.57	3.87	16,638,033
Milford Branch.....	1.97	1.97	
Framingham Branch.....	2.05	2.05	
Milbury Branch.....	2.07	2.07	
Grand Junction R. R.....	8.55	8.55	
3. Boston, Barre and Gardner.....	25.00		250,000
4. Boston, Clinton and Fitchburg.....	41.05	41.05	1,248,258
Marlboro' Branch.....	1.81	1.81	
5. Boston, Hartford and Erie (R. I. & Conn.).....	107.50	97.50	9,750,000
6. Boston and Lowell.....	26.75	26.75	
Woburn Branch.....	1.88	1.88	2,633,300
7. Boston and Maine (N. H. & Me.).....	36.75	36.75	
Medford Branch.....	2.00	2.00	2,548,007
Methuen Branch (less d to M. & L.).....	3.75	3.75	
8. Boston and Providence (R. I.).....	40.80	40.80	2,042,327
Branches.....	7.66	7.66	
9. Cape Cod.....	61.81	61.81	1,401,333
Wareham Branch.....	1.74	1.04	
10. Cheshire (N. H.).....	10.73	10.73	501,176
11. Connecticut River.....	50.00	50.00	
Chicopee Branch.....	3.25	3.25	2,043,992
12. Danvers.....	9.20	9.20	244,458
13. Dorchester and Milton.....	3.26	3.26	156,373
14. Duxbury and Cohasset.....	26.00		
15. Eastern.....	44.10	44.10	
Marblehead Branch.....	3.50	3.50	
Gloucester Branch.....	16.56	16.56	
Salsbury Branch.....	3.41	3.41	6,582,176
Saugus Branch.....	10.10	10.10	
Lawrence Branch.....	19.87	19.87	
16. Faston Branch.....	3.78	3.78	56,144
17. Fall River, Warren and Providence (R. I.).....	3.66	3.66	200,000
18. Fitchburg.....	51.00	51.00	
Watertown Branch.....	7.25	7.25	
Sterling Branch.....	9.00	9.00	3,445,000
Marlboro' Branch.....	3.90	3.90	
Mason Branch.....	12.50	12.50	
19. Fitchburg and Worcester.....	13.90	13.90	233,884
20. Framingham and Lowell.....	21.00		21,000
21. Hanover Branch.....	7.88	7.88	201,040
22. Hartford and New Haven (Conn.).....	5.87	5.87	205,018
23. Horn Pond Branch.....	0.66	0.66	15,248
24. Lexington and Arlington.....	6.63	6.63	263,708
25. Lowell and Lawrence.....	12.35	12.35	263,158
26. Mansfield and Framingham.....	22.50	22.50	610,000
27. Massachusetts Central.....	100.00	100.00	1,000,000
Middleboro' and Taunton.....	8.54	8.54	152,639
28. Milford and Woonsocket.....	3.88	3.88	116,179
29. Milford and Lowell (N. H.).....	9.24	9.24	471,199
30. Nashua and Lowell (N. H.).....	20.13	20.13	
31. New Bedford and Taunton.....	1.46	1.46	500,000
Harbor Branch.....	15.11	15.11	234,600
32. Newburyport.....	14.58	14.58	
Danvers and Georgetown Line.....	12.39	12.39	597,386
33. New Haven and Northampton (Ct.).....	32.44	32.44	1,104,537
34. New London Northern (Ct.).....	43.75	43.75	653,831
35. Norwich and Worcester (Ct.).....	17.40	17.40	673,245
36. Old Colony and Newport (R. I.).....	114.25	114.25	7,051,190
Branches.....	12.17	12.17	
37. Pittsfield and North Adams.....	18.65	18.65	443,678
38. Providence and Worcester (R. I.).....	25.51	25.51	
Branch.....	1.00	1.00	1,213,988
39. Salem and Lowell.....	16.88	16.88	470,558
40. South Reading.....	8.15	8.15	
Branch.....	0.22	0.22	299,469
41. South Shore.....	11.50	11.50	601,593
42. Stockbridge and Pittsfield.....	21.93	21.93	448,700
43. Stonham.....	2.38	2.38	87,992
44. Story Brook.....	11.16	11.16	267,284
45. Stoughton Branch.....	4.04	4.04	113,411
46. Taun on Branch.....	11.10	11.10	250,003
Taunton River Branch.....	0.68	0.68	
47. Troy and Greenfield (tunnel).....	42.55	37.50	2,750,000
48. Vermont and Massachusetts (Vt.).....	59.00	59.00	
Greenfield Branch.....	8.00	8.00	2,954,304
Turner's Falls Branch (project).....	5.50		121,823
49. Ware River.....	46.00	16.00	300,000
50. West Stockbridge.....	2.75	2.75	39,500
51. Williamsburg and North Adams.....	8.00		38,000
52. Worcester and Nashua (N. H.).....	29.60	29.60	1,418,355
Total.....	1,739.02	1,478.47	\$77,496,830

STATE OF RHODE ISLAND.

1. Boston and Providence (Mass.).....	11.00	11.00	\$717,673
2. Fall River, Warren and Bristol (Mass.).....	2.13	2.13	121,063
3. Hartford, Providence and Fishkill (Ct.).....	26.42	26.42	934,617
4. New York, Providence and Boston (Ct.).....	45.00	45.00	1,849,310
5. Old Colony and Newport (Mass.).....	16.25	16.25	808,820
6. Providence, Warren and Bristol.....	13.60	13.60	484,520
7. Providence and Worcester (Mass.).....	17.90	17.90	819,774
8. Westerly (Quarry).....	3.50	3.50	70,000
Total.....	135.80	135.80	\$4,805,596

STATE OF VERMONT.

1. Atlantic and St. Lawrence (Me. & N. H.).....	16.00	16.00	\$647,892
2. Connecticut and Passumpsic Rivers.....	110.30	110.30	2,042,177
3. Grand Trunk of Canada.....	16.50	16.50	1,000,000
4. Harlem Extension (New York).....	64.50	64.50	4,633,900
State Line Branch.....	2.00	2.00	

Corporate Titles of Companies.	Length in Miles. Total.	Completed.	Cost of Road and Equip'm't.	Corporate Titles of Companies.	Length in Miles. Total.	Completed.	Cost of Road and Equip'm't.
5. Lamolille Valley Junction (project).....	.....	.....	.....	61. Niagara Bridge and Canandaigua.....	9.46	98.46	1,000,000
6. Missisquoi and Clyde River (project).....	.....	.....	.....	62. Towanda Branch.....	1.63	1.63	33,600
7. Montpelier and Wells River.....	40.00	.....	.....	63. Northern Air Line (project).....	35.00	.....	3,005,519
8. Northern Vermont and L. Champlain.....	.....	.....	.....	64. North Shore (L. I.).....	8.00	6.25	20,000
9. Portland and Ogdensburg (project).....	25.00	35.00	1,250,000	65. Ogdensburg and Lake Champlain.....	118.00	118.00	5,371,900
10. Rensselaer and Saratoga (New York).....	7.00	7.00	6,500,000	66. Oswego and Rome.....	28.58	28.58	825,095
11. Rutland Branch.....	119.60	119.60	200,000	67. Oswego and Syracuse (3 rails).....	36.29	36.29	1,445,987
12. Southern Vermont.....	8.00	8.00	.....	68. Plattsburg and Montreal (M. & P.).....	29.92	25.92	.....
13. Vermont and Canada.....	47.00	47.00	2,500,000	69. Rensselaer and Saratoga.....	21.00	21.00	6,192,711
14. Burlington Branch.....	8.50	8.50	.....	70. Saratoga and Schenectady.....	12.00	12.00	.....
15. Vermont Central.....	17.00	17.00	10,500,000	71. Saratoga and Whitehall and branch.....	47.52	47.52	.....
16. Vermont and Massachusetts (Mass.).....	10.32	10.32	511,639	72. Rutland and Whitehall and branch (in Vt.).....	27.00	27.00	17,000
17. Vermont Valley.....	23.69	23.69	1,221,881	73. Troy, Salem and Rutland (Vt.).....	17.00	17.00	671,303
18. Woodstock.....	14.00	14.00	420,000	74. Rensselaerville and Berne (project).....	18.45	18.45	4,389,292
Total.....	638.41	618.41	\$32,488,594	75. Rochester and Genesee Valley.....	141.11	111.11	.....

STATE OF NEW YORK.

1. Adirondack.....	182.00	37.00	\$2,567,663	76. Rondout and Oswego.....	85.00	12.00	693,320
2. Albany and Susquehanna.....	142.00	11.00	7,183,162	77. Schenectady and Utica (project).....	78.00	.....	11,600
3. Albany, Sharon and Cherry Valley.....	49.00	15.00	300,000	78. Schuylerville and Upper Hudson (project).....	16.00	.....	16,000
4. Atlantic and Great Western (Penn. & Ohio).....	49.14	49.14	7,127,912	79. Schoharie Valley.....	4.37	4.37	84,143
5. Avon, Genesee and Mount Morris.....	15.30	15.30	217,344	80. Seneca Lake Branch.....	2.10	.....	1,000
6. Black River and St. Lawrence.....	34.00	1.75	57,910	81. Skaneateles.....	5.00	5.00	121,255
7. Black River and Woodhull.....	11.00	10.50	210,000	82. Silver Lake (project).....	6.00	.....	1,830
8. Blossburg and Corning.....	15.64	15.64	5-2 345	83. Southern Central.....	90.50	70.00	2,500,000
9. Boston and Albany (Mass.).....	38.10	38.10	2,411,055	84. Sudas Point and Southern.....	35.00	.....	31,293
10. Hudson City Branch.....	17.23	17.23	2-3 036	85. Southfield Branch.....	1.00	1.00	15,291
11. Boston, Hartford and Erie (Mass. & Ct.).....	42.00	.....	2,000,000	86. South Side (L. I.).....	57.00	57.00	2,500,000
12. Buffalo, Bradford and Pittsburg (Pa.).....	9.00	9.00	1,000,000	87. Branch.....	5.00	6.00	16,000
13. Buffalo, Corry and Pittsburg (Pa.).....	36.70	36.70	1,219,720	88. Spuyten Duyvil and Port Morris (project).....	16.00	.....	359,579
14. Buffalo, New York and Erie.....	142.00	142.00	3,330,000	89. Staten Island.....	13.00	13.00	502,468
15. Buffalo and Southern (Pa.).....	90.00	.....	90,000	90. Sterling Mountain.....	7.00	7.00	3,550,905
16. Buffalo and Washington (Pa.).....	85.00	50.00	1,250,000	91. Syracuse, Binghamton and N. Y.....	81.00	81.00	42,000
17. Cayuga and Susquehanna.....	34.61	34.61	589,110	92. Syracuse Northern (project).....	43.00	.....	234,953
18. Cazenovia and Canastota.....	14.75	14.75	200,000	93. Troy and Bennington.....	5.28	5.28	2,246,743
19. Chemung (3 rails).....	17.35	17.35	400,000	94. Troy and Boston.....	34.91	34.91	294,903
20. Clove Branch.....	4.25	4.25	150,000	95. Troy and Greenhusb.....	6.00	6.00	762,233
21. Cooperstown and Susq. Valley R. R.....	16.00	16.00	365,129	96. Troy Union and Depot.....	2.14	2.14	1,531,858
22. Dunkirk, Warren and Pittsburg.....	41.00	.....	407,000	97. Utica and Black River.....	86.25	44.64	1,586,522
23. Dutchess and Columbia Counties.....	58.00	43.00	1,700,000	98. Trenton Falls Branch.....	2.14	2.14	301,000
24. Elmira, Jefferson and Canandaigua.....	46.84	46.84	500,000	99. Utica, Chenango and Susquehanna Valley.....	82.00	56.00	500,000
25. Elmira and Williamsport (Pa.).....	9.00	9.00	3-5 198	100. Valley (Goshen to Vernon).....	11.40	11.40	199,168
26. Erie Railway (Pa.).....	403.75	403.75	69,000,000	101. Wallkill Valley.....	20.00	20.00	24,974
27. Erie and Genesee Valley (project).....	25.00	.....	9 191	102. Warwick Valley.....	10.16	10.16	1,090,000
28. Erie and New England (Conn.).....	37.00	.....	370,000	103. Waverly and Stat' Line.....	0.25	0.25	1,090,000
29. Far Rockaway Branch.....	6.00	6.00	75,000	104. West Shore Hudson River (project).....	93.00	.....	414,129
30. Flushing and North Side.....	11.40	11.00	399,235	Total.....	5,453.74	3,892.33	\$234,049,545
31. Fondra, Johnstown and Gloversville.....	10.00	10.00	279,938				
32. Glen's Falls.....	5.75	5.75	925,000				
33. Goshen and Deckertown.....	14.77	14.77	360,000				
34. Greenwich and Johnsonville.....	14.00	14.00	360,000				
35. Harlem Extension (Vt.).....	46.00	46.00	2,069,000				
36. Hickville and Cold Spring.....	4.00	4.00	45,262				
37. Hudson and Boston (owned by B. & A. Co.).....	.....	.....	.....	
38. Hudson River (consolidated in New York Central and Hudson River).....	.....	.....	.....	
39. Ithaca and Courtland (project).....	22.00	.....	26,700				
40. Ithaca and Towanda (project).....	35.00	.....	3,000				
41. Keeseville and Montreal (project).....	6.00	.....	6,000				
42. Lake Champlain and Moriah.....	7.00	7.00	210,800				
43. Lake Ontario Shore (projected).....	142.80	.....	148,800				
44. Lake Shore and Michigan Southern (Pa., O. & Ind., Mich. & Ill.).....	68.34	68.34	6,824,000				
45. Lebanon Springs (consolidated in Harlem Extension).....	.....	.....	.....	
46. Long Island.....	94.00	94.00	5,500,000				
47. Jamaica to East New York.....	6.50	6.50	.....			
48. Hempstead Branch.....	2.50	2.50	.....			
49. Glen Cove, Roslyn and Mineola.....	6.50	6.50	.....			
50. Northport Branch.....	4.50	4.50	.....			
51. Sag Harbor Branch.....	23.00	23.00	91,909				
52. Middleburg and Schoharie.....	3.75	3.75	349,361				
53. Middletown, Unionville and Water Gap.....	13.00	13.00	288,565				
54. Montgomery and Erie.....	10.26	10.26	500,000				
55. Monticello and Port Jervis.....	23.75	23.75	1,000,000				
56. Montreal and Plattsburg.....	23.00	23.00	540,000				
57. Newburg and New York.....	12.50	12.50	150,000				
58. Newburg and Walkill Valley (progress).....	15.00	.....	.....		
59. New York and Albany (project).....	150.00	.....	.....		
60. New York Central and Hudson River.....	297.75	297.75	60,000,000				
61. Troy and Schenectady.....	21.00	21.00	.....			
62. Schenectady and Athens.....	37.87	37.87	.....			
63. Syracuse, Auburn and Rochester.....	104.00	104.00	.....			
64. Batavia and Attica.....	11.00	11.00	.....			
65. Rochester and Suspension Bridge.....	74.75	74.75	.....			
66. Lockport and Tonawanda.....	12.25	12.25	.....			
67. Rochester and Charlotte.....	6.88	6.88	.....			
68. Buffalo and Lewiston.....	28.25	28.25	.....			
69. Hudson River (Albany and N. Y.).....	144.00	144.00	.....			
70. New York and Flushing (consolidated in Flushing and North Side).....	.....	.....	.....	
71. New York and Harlem.....	130.75	130.75	13,002,500				
72. Port Morris Branch.....	2.12	2.12	39,750				
73. New York, Housatonic & Northern (Conn.).....	39.75	.....	1,901,719				
74. New York and New Haven (Conn.).....	14.14	.....	.....		
75. New York and Oswego Midland.....	22.00	22.00	6,000,000				
76. New Berlin Branch.....	75.00	.....	.....		
77. Auburn Branch.....	.....	.....	.....	
78. Delhi Branch.....	16.00	.....	.....		

[TO BE CONTINUED.]

The Best Railroad Signal in the World.

The Railroad Telegraphic Alarm, patented July 14th, 1863, and approved and recommended by the Cincinnati Chamber of Commerce, has been so perfected as to meet every possible demand that can legitimately be made upon it, and is without doubt the best railroad signal invented.

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What more is wanted? What more can be asked? It is the very perfection of railroad signalling, and needs only to be applied and arranged as experience may direct to become a necessary means to secure life and property upon railroads.

Cincinnati Water Works.

CONDENSED FROM THE REPORT OF THE OFFICERS FOR THE YEAR 1870.

The following table shows the consumption of water in the city of Cincinnati, and the difference in amount used yearly, from 1845 to 1860, taking the maximum of the daily supply for each year, together with the capacity of reservoir:

Date.	Reservoir capacity in U. S. gallons.	Consumption in 24 hours.	Yearly Inc.	Yearly Inc.
1845.....	1,704,420	3,153,892	.....	.....
1846.....	1,354,640	.....	.....	1,789,161
1847.....	2,790,247	.....	1,425,607	.....
1848.....	3,675,739	.....	1,985,483	.....
1849.....	4,060,335	.....	181,625	.....
1850.....	2,897,242	3,629,565	.....	450,790
1851.....	.....	3,629,562	190,787	.....
1852.....	5,953,687	2,992,952	.....	857,330
1853.....	.....	4,072,667	1,079,605	.....
1854.....	.....	4,375,072	314,505	.....
1855.....	.....	4,575,135	188,663	.....
1856.....	.....	4,994,647	419,512	.....
1857.....	5,164,637	5,264,167	269,520	.....
1858.....	.....	5,621,092	356,925	.....
1859.....	.....	7,106,437	1,485,345	.....
1860.....	.....	8,061,862	955,425	.....

For the years 1861 to 1870, we have taken the highest daily average during the month of maximum supply.

The next table gives the amount of income from water rents, yearly increase, the total gallons pumped, yearly difference in amount, maximum daily average per month.

Date.	Amt. received for water rent	Yearly Inc.
1860.....	\$1 0,308 94	.....
1861.....	161,693 87	83,615 67
1862.....	168,692 96	6,998 19
1863.....	194,224 05	25,531 99
1864.....	359,276 62	167,062 97
1865.....	270,270 92	10,994 90
1866.....	293,248 13	22,977 21
1867.....	322,331 21	29,083 08
1868.....	324,804 82	12,473 61
1869.....	357,557 78	22,752 96
1870.....	352,311 86	24,744 08

Making the excess of supply over the year 1869, 550,214,018 gallons.

The following table gives the total gallons per month, and daily average:

	Total gallons per month.	Daily average per month.
January.....	931,914 533	8,136 975
February.....	9 6,180 267	8,435 009
March.....	934,889 317	8,221 955
April.....	266 761 534	8,933 384
May.....	327,761 892	10,573 961
June.....	357,776 905	11,925 863
July.....	404 782 688	13,044 612
August.....	497,917 707	12,158 635
September.....	413,973 579	13,769 119
October.....	367,934 460	11,866 853
November.....	323,849 229	11,158 307
December.....	333,170 014	10,424 859
Daily average for the year.....	.....	10,812 609

On examining the preceding table you will perceive that the greatest demand for water occurred in the month of September, amounting to nearly fourteen millions of gallons per twenty-four hours.

Although this is the largest daily average, yet owing to various causes, the consumption during a considerable portion of daytime of the past summer months was at the rate of one million gallons per hour. Judging from this fact, I am convinced that this year's demand will require the combined capacity of all three low pressure engines.

The following table will show the daily average for the ten years preceding 1870:

1860.....	4,999,493	1865.....	5,617,981
1861.....	4,833,380	1866.....	6,342,381
1862.....	5,649,361	1867.....	7,857,605
1863.....	5,183,903	1868.....	7,897,298
1864.....	5,405,049	1869.....	9,305,173

MOUNT AUBURN WATER WORKS.

These works have furnished the reservoir on Mount Auburn with 143,670,032 gallons of water during 1870. The monthly supply and daily average are shown in the following table:

	Total gallons per month.	Daily average per month.
January.....	5,959,888	492,254
February.....	4,521,088	161,467
March.....	5,547 072	177,937
April.....	5 915,776	197,192
May.....	9,905,536	319,533
June.....	12,530,308	417,678
July.....	13,737 088	443,131
August.....	14 692,608	473,995
September.....	16,105,920	534,864
October.....	15,729,536	507,404
November.....	17 341,976	578,099
December.....	21,652,176	699,425

Hours run.	Revolutions	Average revolutions per minute
2,087.....	2,244,688	17 92-100
Daily average for the year.....	393,616 gallons.....	.....
Coal delivered during the year.....	.....	Bushels.
Coal consumed during the year.....	.....	33,687
Coal on hand during the year.....	.....	21,746
.....	.....	11,941

Average height of water in reservoir during the year, 27 feet 2 inches.

STAGE OF WATER.

Deeming the matter of some interest, the appended table has been compiled from the record kept at these works, giving the yearly average depth of water in the river; also the highest and lowest stages, and days of months for the past eleven years:

Yearly average.	Highest water.	Lowest water.
ft. in.	ft. in.	ft. in.
1860.....16	49 3, April 16	5 4, Oct. 3.
1861.....19	49 5, April 19,	5 1, July 13.
1862.....17 5	57 4, Jan. 24,	2 4, Nov. 1.
1863.....15	42 9, Mar. 12,	2 6, Oct. 6.
1864.....16 8	45 1, Dec. 23,	3 1, Aug. 6.
1865.....23 6	56 3, Mar. 7,	5 8, Oct. 19.
1866.....19 2	42 6, Sept. 21,	4 9, Aug. 17.
1867.....17	55 8, Mar. 15,	3 1, Oct. 19.
1868.....18 8	48 3, Mar. 13,	5 1, July 27.
1869.....19 8	48 9, April 2,	5 4, Aug. 29.
1870.....17 10	55 3, Jan. 19,	3 10, Oct. 4.

YEARLY CONSUMPTION.

	Water consumed.	Yearly difference.	Maximum daily av. per month.
1860.....	1,824, 15,009	.....	6,178 028
1861.....	1,872,360,618	52,554,310	5,445,215
1862.....	2,082,016,941	2 9,756,853	6,793,414
1863.....	1,892,854,679	169,162 292	6,268,573
1864.....	1 973,207,919	80,353,240	7,113,311
1865.....	1,892,194,289	7 999,359	6,099,154
1866.....	2,314,972,829	737,925,440	8,541,897
1867.....	2,668,026,272	554,032,141	10,744,916
1868.....	2,882,513,801	14,48 654	10,877,700
1869.....	2,356,348,431	513,801,517	11,559,203
1870.....	3,946,602,449	510,214,018	13,799,118

The amount charged for water from 1861 to 1862 was at the rate of 12 cents per thousand gallons. In August, 1863, the rate was changed to fifteen cents per thousand gallons, and has continued so to the present time.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27



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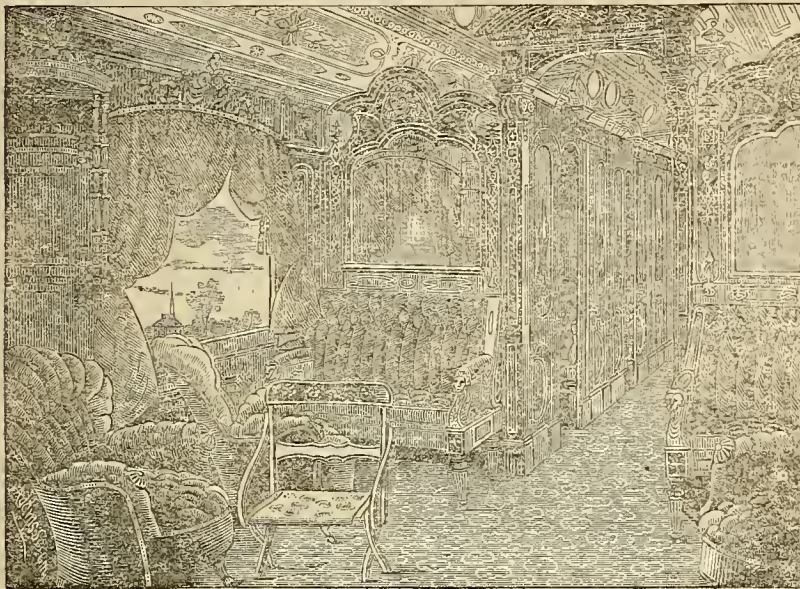
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Lathes, Planers, Shaping and Slotting Machines, Bolt Cutting and Nut Tapping Machines, &c.

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Now fully demonstrated to be the TRUE STEEL RAIL, we are now ready to negotiate with Railroad Companies for its adoption under such arrangements and suggestions as we will upon application by letter or in person make known to them. Opening a new era in Railway economy hitherto unprecedented. All communications must bear the signature of either the President, Vice-President, Superintendent or Engineer.

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59 Miles in Distance Saved
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NEW YORK, and
BOSTON,

WITH THE PRIVILEGE OF GOING TO

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NO CHANGE OF CARS

From Cincinnati or Columbus to Baltimore and but ONE CHANGE

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Ask for TICKETS and BAGGAGE CHECKS via Baltimore & Ohio R.R.

J. L. WILSON, Master of Transportation.

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JANUARY 1st, 1870.

Cincinnati to St. Louis Without
Change of Cars.

Ohio & Mississippi Railroad,

For St. Louis, Cairo, Louisville, Evansville, St. Joseph
Jefferson City, and all points on the Lower Mississippi River, and on the the Illinois
Central Railroad.

TRAINS RUN AS FOLLOWS

St. Louis, Evansville and Cairo

Mall..... 7:15 A. M. 10:55 P. M.

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Night Express..... 10:20 P. M. 6:00 A. M.

The 5:10 P. M. train runs daily. Trains run by Vincennes time, 12 minutes slower than Cincinnati time.

For tickets or information apply at Offices, 132 Vine Street, Corner Front and Broadway; and at Depot, Foot Mill Street.

E. G. BONDURANT, Superintendent, Cin. O.

C. E. FOLLET, Gen'l Ticket Ag't, St. Louis, Mo.

CHANGEABLE GAUGE CAR TRUCKS

As in use on the National Despatch Line of Cars, adapted to two or more gauges. For information apply to

The Lobdell Car Wheel, Tire & Machine Co.

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2-12-9, 62

THE LOBDELL CAR-WHEEL, TIRE & MACHINE

COMPANY,

WILMINGTON, DEL.

Established in 1836.

All kinds of Railroad Machinery

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12-5-70, 62

ERIE RAILWAY.

1400 MILES under One Management. 860 MILES without Change of Coaches.

BROAD GAUGE, DOUBLE TRACK ROUTE

FOR—

NEW YORK, BOSTON,

Providence, Albany,

PITTSBURG, HARRISBURG

Philadelphia, Baltimore,

And Principal Points in

NEW YORK, NEW ENGLAND

—AND—

Pennsylvania.

This Railway extends from

CINCINNATI to NEW YORK, - 860 Miles.

CLEVELAND to NEW YORK, - 625 Miles.

DUNKIRK to NEW YORK, - 460 Miles.

BUFFALO to NEW YORK, - 423 Miles.

ROCHESTER to NEW YORK, - 385 Miles

AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Galion, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburg Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through **860 Miles without Change.**

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depo to the foot of Twenty-third Street, New York, thus enabling passengers to reach the 12 per portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 29 West Fourth Street, 115 Vine Street, 4 Burnet House, and foot of Broadway (Spencer House Block) and at all Principal Ticket Offices in the South and South-west.

W. B. SHATTUCK, Gen'l Pass'r Agt.
W. H. BARK, Gen'l Pass'r Agt.
General Southern Agent.

Best Route to St. Louis and Chicago

INDIANAPOLIS,

CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy, Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West, North west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.20 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.25 pm
Lawrenceburg Accommodation.....	4.20 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7:00 A. M.	6:30 P. M.
do do do.....	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do.....	6:30 P. M.	7:00 A. M.
Lima, Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do.....	2:30 P. M.	5:40 P. M.
do do do.....	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do.....	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do.....	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do.....	.....	6:50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

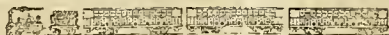
For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots, East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Agt.

Omnibuses call for passengers

The Old And Reliable Route.



Through to Pittsburg without Change.

THE PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINN, General Freight Agent, Pittsburg, Pa.

LOUISVILLE & CINCINNATI SHORT-LINE RAILROAD.

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati **7.20 A. M.** Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville **12.05 P. M.**

No. 6 SOUTHERN FAST LINE leaves Cincinnati at **1.20 P. M.** Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville **5.20 P. M.**

No. 8 MAIL leaves Cincinnati **5.00 P. M.** Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville **10.00 P. M.**

No. 10 NIGHT EXPRESS leaves Cincinnati at **11.15 P. M.** Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at **5.00 A. M.**

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at **6.14 P. M.**, Lexington **7.45 P. M.**, QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY SCOFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad, and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:10, 3:00, 3:30, 3:45, 4:15, 4:30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:22, 7:40, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent
J. M. LORAIN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
A. J. HODDER, - - - - - }

CINCINNATI, THURSDAY, JANUARY 26, 1871

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS

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WRIGHTSON & CO., Props'rs.

Geological Report.

MANUFACTURES OF IRON.

In our last number we noticed the Geological Report upon Ohio, and the production of coal and iron. It will be instructive to our readers, as well as ourselves, to continue this subject, with reference to the manufacture of iron. It is quite curious, that in all the great improvements of the last half century in the arts none is practically greater than in the manufacture of iron. One would have thought that all that could be done in the manufacture of iron would have been done in the early ages of the world. It involved simply the digging of ore, the melting of iron, and the rolling it out; and why should not man have perfected such simple arts in early days? So far, however, from that, that some of the greatest improvements in the art of making iron have been made in the last thirty years. We may say here, that the manufacture of iron was begun two centuries ago in Massachusetts, in the very earliest stage of colonial existence. Very curiously, the cause of its obstruction then, and delay and difficulty, was precisely what it is now. It was the *dearness of labor* compared with what it is in other countries. Our iron manufacture would be doubled if the cost of our labor was not double that of Europe. We have a high tariff on iron, but even that is not enough to prevent a formidable competition from the foreign iron manufacturer. But the improvements in making iron in the last thirty years

have been such as to make an almost change in England, France and this country. The following paragraph from Dr. Newberry's report will explain one of the particulars in which the change consists in Ohio:

"Nearly all the iron used in the world, at the present time, is manufactured with mineral fuel, and yet it reference be made to the first report, published by the former Geological Board—a little more than thirty years ago—it will be seen that the use of raw coal as a furnace fuel was then announced as a new and wonderful discovery; and the first employment of mineral fuel in Ohio dates from a period considerably subsequent to that. The old charcoal furnaces were thought to no well when they gave a yield of from thirty to fifty tons per week. Now there are several furnaces in Ohio, each of which produces three hundred tons of pig in the same time, and some of the English furnaces are producing six hundred tons per week."

Of course, iron can be made a great deal cheaper by making double as much as before in a furnace. There is no question now, that all iron will soon be made with mineral coal. So also the 80 furnaces of Ohio make more iron to-day than double the old furnaces could make, and therefore the increase of furnaces now do not show the real increase of the iron manufacture. But the use of mineral coal is no greater improvement than that in the construction of furnaces.

"Much of the improvement in our furnaces has been made within the last five or six years, and has consisted in increasing their dimensions, viz: the diameter, from ten to sixteen feet, and the height, from forty to sixty feet, by adding to the force and temperature of the blast, by close top, &c. These improvements, so potent in their influence on the productiveness of the furnaces are, however, not yet introduced by half of the furnace men in our State. By most of them, therefore, these steps of progress are to be made."

The improvement in Ohio furnaces has been slow. We believe there is an idea that charcoal iron is the best, but there is no need of that, coal will make as good iron as wood.

But our Ohio make of iron is still deficient in the best processes. Dr. Newberry says:

"Even our best furnaces are still behind the age, as in their productiveness and economy they come far short of what is accomplished elsewhere, and what is attainable here. For example, the average consumption of our Briar Hill coal is two and a half tons to one of iron. At Massillon, three and a half to four tons of coal are used to make a ton of iron. In contrast with these figures, in the Cleveland district, in England, where coke is used, no better than some of our own, the furnace stacks are carried to a height of one hundred, and in some instances one hundred and two feet, and in them less than one ton of coke makes a ton of iron. With the resources at our command, and the ingenuity for which our people are celebrated, I think we may be sure that we shall not long remain satisfied while such comparisons can be made."

The Ellershausen process seems likely to be very beneficial to the iron manufacturer. Dr. Newberry describes it thus:

"The Ellershausen process may be explained in very few words. We have seen that pig iron consists of pure metallic iron, with four to five per cent. of carbon, while the richer iron ores consist mainly of iron and oxygen. Ellershausen's theory was that iron ore could be mingled with cast iron in such a way that the oxygen of the ore would unite with the carbon of the pig metal, and passing off as carbonic oxide, leave the iron of both elements in the combination in the metallic state. The experiment was first tried by drawing a ladle of molten iron from the furnace, and stirring into it a quantity of iron ore. The change anticipated began at once, and the iron assumed a pasty condition, which rendered it impossible to stir it with a bar. Substituting a wooden rod, the materials were mingled and were made to form a ball similar to that collected in the puddling furnace by the rabble. This ball heated, squeezed and rolled, was found to furnish a fair article of bar iron. Subsequently there was substituted for the ladle a wheel eighteen feet in diameter, bearing on its margin a series of boxes. This wheel was made to revolve beneath a stream of molten iron and pulverized ore that crossed each other at right angles. By the rotation of the wheel the boxes were gradually filled with layers of iron mixed with ore. When each contained a sufficient quantity the sides were removed and the blooms transferred to the puddling furnaces, there reheated until the slag they contain was "sweated" out, then squeezed and rolled into bars. These bars, without piling or re-rolling, are found to exhibit all the properties of first class iron."

This process has been adopted in some of the large iron establishments.

The Bessemer process for steel we spoke of and commended in the RECORD fifteen years ago, and we have now the satisfaction of knowing that it is a complete success, and one of the great practical improvements of the day. There is another process, called the Siemen-Martin process, of which Dr. Newberry thus speaks:

"This process, invented and largely employed in France, has lately been introduced into this country by Messrs. Cooper & Hewitt, at Trenton, N. J., and has proved here, as abroad, an entire success. It consists in melting down, in a Siemen's furnace, a quantity of pig iron, then adding to this sufficient malleable iron to dilute the carbon in the mass to any desired percentage, and thus produce any required grade of steel. The point aimed at is reached invariably by testing, from time to time, the quality of the metal, and adding pig or bar iron as required. This is a simple and perfectly manageable method of producing steel, but it is doubtful if it can rival in simplicity and cheapness the process of Mr. Bessemer."

We have been particularly interested in the new facts discovered in relation to the clays, stones, &c.

"Most of our building stones have also been examined, the composition and strength of some of them determined, and nicely dressed blocks of each placed in the State collection. Many of our clays have been collected, and investigations begun for the determination of their composition and their adaptation to the manufacture of pottery, fire brick, common brick, &c. Already a great industry is based upon this material in our State—one

that is capable of indefinite expansion, and one that especially needs the aid which applied science can afford it. In the article of fire brick alone, an immense gain would be secured to our furnace men by supplying them (as they may be readily supplied) with a good article of home manufacture at half the cost of the imported. The Amboy brick cost us \$65 a thousand, and Mr. Alexander, of Akron, has demonstrated that an equally refractory brick can be made and sold here for \$35. The imported Dinas brick cost in this country \$100 a thousand; we can make in Ohio an equally good brick for less than \$50."

These last facts are of importance. We have shown heretofore that Ohio has the finest building stone in the country, and Ohio sandstone is now used in ornamenting public buildings in New York.

The Chesapeake & Ohio Railway Connection.

The enterprising President of the Hillsboro, Jackson & Ohio River Railroad has recently visited New York, and there held a conference with President Huntington of the Chesapeake & Ohio Railway, which he assures the people was of the most satisfactory and promising nature.

The last week's *Hillsboro Gazette*, speaking upon this subject, says:

"Some additional surveys are to be made, which will be executed as soon as the weather permits and the money is raised on the lines to pay for the engineering. One of these lines is from the Ohio river by Symmes creek valley to a connection at some point with the Hillsboro & Jackson line, and the other the short line from Hillsboro to Cincinnati.

As soon as it can be known what action will be taken by the Legislature on the Griffith bill, now pending, active efforts will be inaugurated to raise stock along the line, either under that law, if it passes, or by private subscriptions if it fails.

Mr. Huntington, President of the Ch. & O. R. R. Co., and his chief engineer, will make a personal examination of the line and of the resources of the country at an early day.

This enterprise is regarded by intelligent R. R. men as one of the highest importance, and one of great future promise as a paying road. It will be well for our citizens to make up their minds to aid it to the utmost extent of their ability. To lose it by withholding that aid, will be a sad and irreparable disaster. To gain it is to gain vastly more than was ever promised by any R. R. enterprise heretofore presented for the consideration of our people.

This brings us to the question again of what is being done by Cincinnati to reach the river terminus of the Chesapeake & Ohio road.

A few days since we received a call from one of the contractors of the heaviest work upon the road, and he assured us that with the present force there is no apparent reason whatever why the work may not be done by July, 1872.

At the opening of the work upon the Chesapeake road, our people underwent a paroxysm of railroad emotion, and they talked a great deal, and resolved more, about the importance

of the undertaking, and the absolute necessity of completing a connecting line with this city by the time the main stem was finished. And, if we recollect correctly, there were two or three companies organized for this purpose, and by one of them some surveying was done, and there the matter ended. We have therefore done nothing—absolutely nothing, and was it not for the tireless energy of Col. Trimble, who is trying all sorts of experiments with any and every body to get his road through, we would hear nothing about the progress of this great project, and forget that we had once proposed to avail ourselves of a new, and a shorter, and in every other respect, better outlet to the sea, than any we now possess.

This great thoroughfare is of little less importance to us, than our Southern road for which we have been straining ourselves to spend ten millions of dollars. Why should we not therefore give it some attention? There is barely time enough to organize a company and construct the most favorable line, by the time the Chesapeake & Ohio road is completed to the river, and unless we do this it is quite likely that some of the contemplated roads from Columbus and the lakes will be ahead of us, and in such relations with the C. & O. Company as will command the best of their traffic.

Would it not be well for our Board of Trade to consider this matter, and to at once take such steps as would set something in motion, if it did not produce more than another temporary spasm? This would keep us from rusting out at any rate, and keep us in the land of the living a little longer.

Indianapolis, Cincinnati & Lafayette Road.

On the 19th inst., quite a large meeting of the creditors of this road was had at the office of the company in this city, for the purpose of considering ways and means of relief. The meeting was organized by placing Mr. Barney, of the firm of Barney, Smith & Co., of Dayton, in the chair.

There were one hundred of the company's creditors in attendance, representing something over one-fourth of the entire claims against the road.

The President of the company, Mr. Ingalls of Boston, made a statement of the financial condition of the company, which shows that its floating debt is about fourteen hundred thousand dollars, and that there is no means on hand to meet any material part of this sum. He also stated that the directors were prepared to quiet these claims by the issue of a new lien upon the road, that should yield seven per cent interest.

Upon this statement Mr. Preserved Smith asked for the reading of the report of the receivers. Gen. Morris thereupon read the report and the accompanying schedules.

Afterwards the question of receiving mortgage bonds for these claims was discussed, and a committee of the creditors present appointed to confer with the board of directors upon this question, which resulted in the suggestion of the following as likely to meet the approval of the stockholders:

1st. A trillion of dollars of bonds to be issued, to be secured by a mortgage upon the company's property, and having twenty years to run, to bear seven per cent. interest, and to be dated on the 1st day of May, 1871.

2d. The claims are to be made up with principal and interest, to November 1st, 1871, and the coupons upon these bonds for interest up to that time to be cut off, and surrendered to the company.

3d. The creditors are to take these securities at ninety cents on the dollar.

4th. The mortgage by which these bonds are to be secured, shall be made to two trustees, the company and the creditors, each naming one.

5th. The mortgage is to contain a provision that in case of default in the payment of the interest for the period of sixty days, the bondholders may take possession of the road and operate it.

6th. A sinking fund of \$5,000 a year is to be provided for, which the trustees shall invest, and to be used in retiring these bonds from time to time, or at maturity.

7th. And the same penalty is provided for, in the default of the regular payment of the sinking fund, as that for the default in the payment of the interest upon the bonds.

8th. To render this proposition obligatory, \$750,000 of the credit interest must approve of it within ninety days from its date.

9th. The bonds may be exchanged for stock of the road.

These are the essential features of the proposition as we understand it, and as was approved by the creditors present.

On the whole, we think, this is the best settlement that can be made for all the parties concerned, provided, of course, that the earnings of the road under good management, and a severe economy are adequate to meet these new demands. We are not in possession of the facts that would enable us to decide this matter for ourselves, but we presume they have been duly considered by those who assume the responsibility of meeting these obligations, otherwise this arrangement is but a truce with the creditors, and sooner or later will produce consequences more fatal to both creditors and company, than any that are likely to happen them by facing the music now.

The road is a good one, capable of becoming among the best that finds our city, and we are most anxious to see it relieved from its embarrassments, and fairly on its natural career to a high prosperity.

List of Railroad Purchasing Agents

Alabama & Chattanooga	G. W. Tallant,	Chattanooga Tenn	J. G. Peebles,	Ashland, Ky.
Albany & Susquehanna	D. W. C. Ramsey,	Albany, N. Y.	Little Miami, Columbus & Xenia	Cincinnati, O.
Alexandria, Loudoun & Hampshire	Lewis McKenzie,	Alexandria, Va.	Long Island	Hunters Pt.
Androscoggin	Oliver Moses,	Bath, Me.	Louisville & Nashville	Louisville, Ky.
Atlantic & North Carolina	E. R. Stanley,	Newbern, N. C.	Louisville, N. Albany & Chicago	N. Albany, Ind.
Avon, Genesee & Mt. Morris	G. W. Phelps,	Mt. Morris, N. Y.	Lowell & Lawrence	Lowell, Mass.
Baltimore & Ohio	Jno Oliver,	Baltimore, Md.	Machiasport	Boston, Mass.
Baltimore & Potomac	Wm. Worrell,	Baltimore, Md.	Macon & Western	Macon, Ga.
Baton Rouge, Gros Tete & Opelousa	D. C. Montan,	Baton Rouge, La	Maine Central	Waterville, Me.
Blossburg & Corning	R. J. Burnham,	Corning, N. Y.	Manchester & Lawrence	Concord, N. H.
Boston, Clinton & Fitchburg	H. A. Blood,	Fitchburg, Mass	Marietta & Cincinnati	Cincinnati, O.
Boston, Concord & Montreal	Lyon & Vose,	Boston, Mass.	Memphis & Charleston	Memphis, Tenn.
Boston & Maine	Alfred Perkins,	Boston, Mass.	Michigan Central	Detroit, Mich.
Buffalo, Corry & Pittsburg	N. M. Whiteside,	Mayville, N. Y.	Middleburg & Schoharie	Middleburgh, N. Y.
Burlington & Missouri River	J. W. Ames,	Burlington, Iowa	Midland (Ca.)	Port Hope, Ca.
Calais & Baring	E. M. Sawyer,	Calais, Me.	Milwaukee & St. Paul	Milwaukee, Wis.
California & Oregon	J. R. Watson,	Sacramento, Cal	Mineral Point	Mineral Pt. Wis.
California Pacific	C. A. Haskin,	Vallejo, Cal.	Mississippi Central	Water Val, Miss
Camden & Amboy R R & Trans. Co	H. VanCleve,	Bordertown, N. J	Missouri Valley	St. Joseph, Mo.
Cape Cod	E. N. Winslow,	Wareham, Mass.	Mobile & Ohio	Mobile, Ala.
Catawissa	George Webb,	Williamsport Pa	Mobile & Montgomery	Montgom'y, Ala
Central Pacific (Cal.)	J. R. Watson,	Sacramento, Cal	Montgomery & Eufaula	Montgom'y, Ala
Chesapeake & Ohio	J. A. Netherland,	Richmond, Va.	Montgomery & West Point	Montgom'y, Ala
Cheshire	H. H. Stone,	Keene, N. H.	Nashville & Chattanooga	Nashville, Tenn.
Chicago & Alton	A. V. Hartwell,	Chicago, Ill	Nashville & Decatur	Bridgeport, Conn.
Chicago, Burlington & Quincy	H. S. Higgins,	Chicago, Ill.	Nesquehoning Valley	Philadelphia, Pa
Chicago, Cincinnati & Louisville	C. W. Bradley,	La Porte, Ind.	New Bedford and Taunton	N. Bedford, Mass
Chicago & Northwestern	H. Bausher, Jr.,	Chicago, Ill.	New Haven & Northampton	N. Haven, Conn.
Chicago, Rock Island & Pacific	Allen Manvell,	Chicago, Ill.	N. O. Jackson & Gt. Northern	N. Orleans, La.
Chicago & Southwestern	C. F. Burnes,	St. Louis, Mo.	New York Central	Albany, N. Y.
Cincinnati, Hamilton & Dayton	P. Hickey,	Cincinnati, O.	New York & Harlem	New York.
Cincinnati, Richmond & Chicago	P. Hickey,	Cincinnati, O.	New York & New Haven	N. Haven, Conn.
Cincinnati, Sandusky & Cleveland	A. J. Morrison,	Sandusky, O.	New York, Providence & Boston	Stonington, Conn
Cincinnati & Zanesville	E. Gest,	Cincinnati, O.	Norfolk & Petersburg	Petersburg, Va.
Cleveland & Pittsburg	Wm. Mullins,	Pittsburg, Pa.	North Missouri	St. Louis, Mo.
Clinton & Port Hudson	G. A. Neufus,	Clinton, La	Norwich & Worcester	Norwich, Conn.
Columbus & Hooking Valley	J. W. Doherty,	Columbus, O.	Ogdensburg & Lake Champlain	Boston, Mass.
Concord	J. R. Kendrick,	Concord, N. H.	Ohio & Mississippi	Cincinnati, O.
Concord & Portsmouth	J. R. Kendrick,	Concord, N. H.	Oil Creek & Allegheny River	Corry, Pa.
Connecticut & Passumpsic Rivers	A. H. Perry,	Lyndonville, Vt.	Old Colony & Newport	Boston, Mass.
Connecticut River	J. Mulligan,	Springfield Mass	Orange & Newark	Newark, N. J.
Danbury & Norwalk	Jno. W. Bacon,	Danbury, Conn	Pacific (E. D.)	St. Louis, Mo.
Danville, Hazelton & Wilkesbarre	S. P. Case,	Danville, Pa.	Pennsylvania	Philadelphia, Pa
Dayton & Union	S. R. Stimson,	Dayton, O.	Peori, Pekin & Jacksonville	Havana, Ill.
Detroit & Milwaukee	R. C. Faulconer,	Detroit, Mich.	Petersburg	Petersburg, Va.
Delaware & Hudson Canal	G. L. Haight,	New York.	Philadelphia & Baltimore Central	Philadelphia, Pa
Delaware, Lackawanna & Western	G. W. B. Cushing,	Scranton, Pa.	Philadelphia & Reading	Philadelphia, Pa
Denver Pacific	C. W. Fisher,	Denver, Col.	Pittsburg, Cincinnati & St. Louis	Pittsburg, Pa.
Des Moines Valley	George E. Kilbourne,	Keokuk, Iowa.	Pittsburg & Connellsville	Pittsburg, Pa.
Eastern	K. B. Newell,	Boston, Mass.	Pittsburg, Ft. Wayne & Chicago	Pittsburg, Pa.
E. Tennessee, Virginia & Georgia	R. C. Jackson,	Knoxville, Tenn.	Portsmouth & Oxford Central	Canton, Me.
Edgefield & Kentucky	R. A. Bacon,	Nashville, Tenn.	Portland, Saco & Portsmouth	Providence, R. I.
Erie Railway	G. C. Hall,	New York.	Providence, Warren & Bristol	Providence, R. I.
Erie & Pittsburg	J. A. Tracy,	Erie, Pa.	Providence & Worcester	Providence, R. I.
European & N. American (N. B.)	Samuel Watson,	St. John, N. B.	Reading & Columbia	Philadelphia, Pa
European & N. American (Me.)	J. M. Lunt,	Bangor, Me.	Richmond, Fredericks'g & Potomac	Richmond, Va.
Evansville, Henderson & Nashville	Alex. Sinclair,	Hopkinsville Ky	Rockford, R. Island & St. Louis	Chicago, Ill.
Fitchburg	Jno. Adams,	Boston, Mass.	St. Louis & Iron Mountain	St. Louis, Mo.
Flint & Perre Marquette	G. C. Kimball,	E. Saginaw, Mich	St. Louis, Macon & Omaha	Macon, Mo.
Georgia	John Vaughan,	Angusta, Ga.	St. Paul & Sioux City	St. Paul, Minn.
Grand Trunk (Ca.)	Jno. Taylor,	Montreal, Ca.	Salem & Lowell	Lowell, Mass.
Great Western (Ca.)	James Howard,	Hamilton, Ca.	San Francisco & San Jose	San Francisco, C
Greenwich & Johnsonville	Wm. M. Holmes,	Greenwich, N. Y	Selma & Meridan	Selma, Ala.
Hannibal & Naples	A. J. Stillwell,	Hannibal, Mo.	Selma, Rome & Dalton	Patona, Ala.
Hannibal & St. Joseph	G. H. Nettleton,	Hannibal, Mo.	Sheboygan & Fond du Lac	Sheboygan, Wis.
Hanover Branch	H. A. Young,	Hanover, Pa.	South Pacific	St. Louis, Mo.
Harlem Extension	R. C. Moore,	New York.	South Side (Va.)	Petersburg, Va.
Hastings & Dakota	E. B. Allen,	Hastings, Minn.	Southern Minnesota	La Crosse, Wis.
Houston & Texas Central	D. H. Paige,	New York.	South Western (Ga.)	Macon, Ga.
Hudson River	C. V. DeForest,	New York.	Springfield, Illinois & S. Eastern	Cincinnati, O.
Illinois Central	S. Hoyt,	Chicago, Ill.	Sussex	Newton, N. J.
Indianapolis & St. Louis	J. W. Morse,	St. Louis, Mo.	Sycamore & Courtland	Sycamore, Ill.
Indianapolis, Cincinnati & Lafe	N. H. McLean,	Cincinnati, O.	Syracuse, Binghamton & N. Y.	New York.
Jackson, Lansing & Saginaw	A. Watson,	Jackson, Mich.	Taunton Branch	Taunton, Mass.
Jeffersonville, Mad. & Indianapolis	R. J. Elvin,	Jeffersonv., Ind.	Terre Haute & Indianapolis	Terre Haute Ind
Junction (Cin. & Ind.)	J. Walters,	Cincinnati, O.	Tioga	Blossburg, Pa.
Kansas Pacific	T. F. Oakes,	St. Louis, Mo.	Toledo, Peoria & Warsaw	Peoria, Ill.
Kentucky Central	G. H. Pendleton,	Covington, Ky.	Toledo, Wabash & Western	Toledo, O.
Kings Mountain	R. S. Moore,	Yorkville, S. C.	Union Pacific	Omaha, Neb.
Lackawanna & Bloomsburg	G. W. C. Cushing,	Scranton, Pa.	Virginia & Tennessee	Lynchburg, Va.
Lake Shore & Mich. Southern	S. G. Remington,	Cleveland, O.	Western & Atlantic	Atlanta, Ga.
Lake Superior & Mississippi	Frank Bishop,	St. Paul, Minn.	Western North Carolina	Morganton, N. C.
Leavenworth & Des Moines	C. F. Burnes,	St. Louis, Mo.	Western Pacific (Cal.)	Sacramento, Cal
Leavenworth, Lawrence & Gal.	W. C. Ramson,	Lawrence, Ka.	Western Union	Milwaukee, Wis.
Lehigh & Susquehanna	W. B. Whitney,	Philadelphia, Pa	Wilmington, Columbia & Augusta	Wilmington, N. C.
Lehigh Valley	L. Chamberlain,	Philadelphia, Pa	Wilmington & Weldon	Wilmington, N. C.
			Worcester & Nashua	Worcester, Mass

Railroads of the United States

A Tabular Statement showing the Length and Cost of each Work at the close of the financial year ending nearest to January 1, 1871.

(Continued from page 339.)

(Not including City Passenger Railroads.)

STATE OF PENNSYLVANIA.

Corporate Titles of Companies.	Length in Miles. Total.	Completed.	Cost of Road and Equip't.
1. Allegheny Valley.....	232.02	122.00	\$9,311,592
2. Atlantic and Great Western (part in N. Y. & O.)	92.15	92.15	17,277,918
Oil City Branch.....	33.20	33.20	
3. Bald Eagle Creek.....	51.19	51.19	1,050,000
Bellefonte Branch.....	2.00	2.00	
4. Barclay Coal.....	16.01	16.00	1,734,000
5. Bedford and Brileport (project).....	27.59		2,750
6. Bellefonte and Snow Shoe.....	21.00	21.00	442,059
Branch.....	1.50	1.50	
7. Buffalo, Bradford and Pittsburg (N. Y.).....	18.00	18.00	1,996,570
8. Buffalo, Corry and Pittsburg (N. Y.).....	6.50	6.50	218,473
9. Buffalo and Erie (consol. in L. S. & M. Co.).....	35.10		
10. Buffalo and Southern (N. Y.).....	25.00		
11. Buffalo and Washington (N. Y.).....	4.00	4.00	120,000
12. Bloss.....	26.00	20.00	738,854
13. Catasauqua and Pottsville.....	4.00	4.00	
Forquinton Branch.....	65.00	65.00	3,826,500
14. Catawissa.....	2.50	2.50	
Summit Branch.....	28.00	11.00	1,250,000
15. Chartiers Valley (progress).....	90.00		900,000
16. Chenango and Allegheny Valley (progress).....	7.25	7.25	344,500
17. Chester Creek.....	21.50	21.50	1,711,000
18. Chestnut Hill.....	4.13	4.13	126,650
20. Cleveland and Pittsburg (O.).....	15.00	15.00	904,830
21. Cleveland, Painesville and Ashtabula (consol. in L. & M. Co.).....	18.50	12.80	558,090
22. Colebrookdale.....	98.31	0.73	924,000
23. Columbia and Port Deposit (Md.).....	6.78	6.78	2,278,320
24. Connecting (Phila.).....	57.00	29.00	1,492,205
25. Connelville and Southern (project).....	22.00		1,200,000
26. Cumberland Valley (Md.).....	32.00	32.00	2,938,802
27. Danville, Hazleton and Wilkesbarre.....	113.00	113.00	14,500,000
Black Creek Branch.....	2.80	2.80	
28. Delaware and Hudson Canal Co.'s R. R.....	1.50	1.50	264,800
29. Delaware, Lackawanna and Western.....	7.54	7.54	391,604
Keyser's Valley Branch.....	36.00	34.00	1,472,599
30. East Brandywine and Waynesburg.....	11.00	11.00	192,000
31. East Mahanoy.....	70.00	70.00	2,351,300
32. East Pennsylvania.....	6.50	6.50	339,816
33. Ebensburg and Cresson.....	42.00	42.00	5,000,000
34. Elmira and Williamsport (N. Y.).....	83.69	83.69	3,680,125
35. Enterprise.....	3.16	3.16	
Branches.....	12.66	12.66	130,000
36. Erie Railway (N. Y.).....	17.12	17.12	313,000
37. Erie and Pittsburg.....	12.90	12.90	237,891
Erie Harbor Branch.....	36.00	36.00	1,892,550
38. Fayette County.....	18.01	18.00	1,691,528
39. Gettysburg.....	61.00	23.00	
40. Hanover Branch.....	41.00	41.00	
41. Harrisburg and Lancaster.....	9.25	9.25	2,202,147
Columbia Branch.....	4.50	4.50	
42. Hempfield (W. Va.).....	1.00	1.00	
43. Huntingdon and Broad Top Mountain.....	11.00	11.00	268,000
Shannon's River Branch.....	43.25	43.25	1,765,248
44. Ironston.....	1.50	1.50	
45. Jamestown and Franklin.....	4.62	4.62	898,324
46. Junction (Phila.).....	80.00	80.00	3,570,000
47. Lackawanna and Bloomsburg.....	2.00	2.00	
Pittston Branch.....	44.03	44.03	2,325,576
48. Lake Shore and Michigan Southern (O. Mich. Ind. and Ill.).....	8.10	8.10	308,122
49. Lawrence (part in Ohio).....	26.00	15.00	750,000
50. Lehigh and Lackawanna.....	105.00	105.00	
51. Lehigh and Susquehanna.....	9.00	9.00	
Nanticoke Branch.....	1.01	1.01	13,919,562
Nesquehanna Branch.....	13.00	13.00	
52. Lehigh Valley.....	41.00	41.00	
Black Creek and Mt. Carmel.....	101.00	101.00	
Penn. Haven and Audenried.....	46.02	46.02	
Penn. Haven to Hazleton.....	17.56	17.56	
Branches to same.....	14.70	14.70	17,987,639
Hazleton to Milnesville.....	6.51	6.51	
Branches to same.....	8.93	8.93	
53. Little Saw Mill Run.....	8.13	8.13	
54. Littlestown.....	3.00	3.00	91,011
55. Little Schuylkill.....	7.25	7.25	76,000
Branches (Panther and Wabash).....	24.25	24.25	1,466,283
56. Lorry Creek.....	3.70	3.00	
Panther Head Branch.....	5.51	5.50	82,050
57. Locust Gap.....	1.00	1.00	
58. Lykens Valley.....	4.88	4.88	1,004,000
Summit Branch.....	21.00	21.00	908,102
59. McCauley Mountain.....	0.50	0.50	
60. Mahanoy and Broad Mountain.....	0.25	0.25	150,500
Mt. Carmel Extension.....	12.71	12.71	
Shenandoah Branch.....	4.28	4.28	
Mahanoy City Branch.....	4.70	4.70	
Raven Run Branch.....	5.06	5.06	
Ashland Extension.....	1.65	1.65	2,272,345
Locust Gap Extension.....	1.35	1.35	
Coal Ridge Branch.....	3.54	3.51	
Waste House Run Branch.....	3.20	3.20	
61. Mahanoy Valley.....	1.97	1.97	150,025
	6.85	6.85	

Corporate Titles of Companies.

Length in Miles.

Cost of Road and Equip't.

Corporate Titles of Companies.	Length in Miles. Total.	Completed.	Cost of Road and Equip't.
62. Mifflin and Centre Counties.....	12.50	12.50	253,466
63. Mill Creek and Mine Hill.....	3.8	3.76	223,315
Extension and Branches.....	9.20	8.20	
64. Mine Hill and Schuylkill Haven.....	59.40	52.40	3,814,957
Extension and Branches.....	87.20	87.10	
65. Monacaahala Valley (project).....	90.00		50,000
66. Mount Carbon.....	6.26	6.26	203,260
Branches.....	6.80	6.80	
67. Mount Carbon and Port Carbon.....	4.74	4.76	282,815
Branches.....	9.26	9.26	
68. Middle Creek (progress).....	5.00		130,311
69. Nesquehoning Valley.....	13.00	13.00	439,234
Branches.....	4.50	4.50	
70. Newcastle and Beaver Valley.....	14.92	14.92	421,408
71. Neary Branch.....	1.61	1.61	30,000
72. Northern Central (Md.).....	102.00	102.00	10,689,326
73. North Lebanon.....	7.72	7.72	278,880
74. North Pennsylvania.....	55.60	55.60	
Doylestown Branch.....	10.30	10.30	7,025,093
Shmerville Branch.....	1.00	1.00	
75. Oil Creek and Allegheny River.....	95.00	95.00	7,660,000
Cherry Run Branch.....	3.50	3.50	
76. Oil Creek and Pithole.....	7.49	7.49	675,600
77. Pennsylvania.....	200.00	200.00	
Holidaysburg Branch.....	7.00	7.00	
Indiana Branch.....	19.00	19.00	32,392,867
Stevensville Extension.....	1.29	1.29	
Delaware Extension.....	5.50	5.50	
Tyrone Branch.....	3.10	3.10	
78. Pennsylvania and New York Canal R. R.....	105.00	105.00	3,840,679
79. Pennsylvania Canal Coal.....	9.00	12.00	400,400
80. Pennsylvania Canal.....	47.00	47.00	
Back Track.....	47.00	47.00	2,000,000
Lackawanna Branch (Erie).....	15.87	15.87	
81. Perkiomen.....	36.50	36.50	518,739
82. Philadelphia and Baltimore Central (Md.).....	36.00	36.00	1,108,152
83. Philadelphia, Germantown and Norristown.....	17.18	17.18	1,454,872
Germantown Branch.....	3.14	3.14	
84. Philadelphia and Erie.....	287.00	287.00	19,308,712
Lewisburg Branch.....	2.69	2.69	
85. Philadelphia and New Hope.....	27.50		37,500
86. Philadelphia and Reading.....	93.00	93.00	
Richmond Branch.....	6.00	6.00	
N. Liberties and Penn. Tph. Br.....	1.40	1.40	
Union Branch.....	3.40	2.40	59,515,567
Good Spring Branch.....	20.50	20.50	
West Reading Branch.....	1.70	1.70	
Lebanon and Pine Grove R. R.....	16.70	16.70	
Lebanon Valley R. R.....	54.10	54.10	
87. Philadelphia and Trenton.....	26.50	26.50	1,436,338
88. Phila. Wilmington and Balt. (Del. & Md.).....	18.37	18.37	1,952,903
89. Pine Grove and Lebanon.....	6.60	6.60	137,803
90. Pittsburg, Cincinnati & St. Louis (W. Va. & O.).....	34.00	34.00	2,699,498
91. Pittsburg and Connelville (Md.).....	141.00	60.00	3,680,592
92. Pittsburg, Ft. Wayne & Chicago (O. Ind. & Ills.).....	49.00	49.00	2,560,654
93. Plymouth (P. G. & N. R.).....	6.60	6.60	200,000
94. Port Clinton and Topton (progress).....			
95. Port Kennedy.....	1.20	1.20	50,000
96. Reading and Columbia.....	46.00	46.00	2,146,147
Lancaster Branch.....	8.00	8.00	
97. Schuylkill and Susquehanna.....	54.00	54.00	1,306,702
Branch.....	1.00	1.00	
98. Schuylkill Valley.....	11.00	11.00	576,841
Branches.....	20.65	20.65	
99. Shamokin Valley and Pottsville.....	28.00	28.00	1,569,450
Branches.....	6.00	6.00	
100. Shamokin and Treverton.....	6.60	6.60	191,809
Carbon Run Branch.....	2.80	2.80	
101. South Mountain Iron.....	17.12	17.12	340,535
102. Southern Pennsylvania (project).....	209.00		269,000
103. Southwark (P. W. & B. R. R.).....	2.12	2.12	58,478
104. Strsburg.....	4.28	4.28	100,000
105. Saatura (Cold Spring).....	6.00	6.00	120,000
106. Sullivan and Erie.....	29.60	10.00	600,000
107. Summit Branch (Lykens Valley).....			
108. Tioga.....	36.60	36.60	1,173,945
109. Tyrone and Clearfield.....	27.50	37.50	
Moshannon Branch.....	3.00	3.00	
Madera Branch.....	1.50	1.50	914,009
Phillipsburg Branch.....	2.50	2.50	
Decatur Branch.....	1.00	1.00	
110. Union Canal Co.'s Railroad.....	3.50	3.50	130,000
Branches.....	2.50	2.50	
111. Union Coal Company's Railroad.....	19.00	19.00	200,000
112. Warren and Pine Grove (progress).....	11.00		110,000
113. Westchester.....	9.00	9.00	202,886
114. Westchester and Philadelphia.....	26.50	26.50	1,618,300
115. Western Pennsylvania.....	26.10	26.10	
Allegheny Extension.....	27.60	27.60	3,179,441
Freeport to Butler.....	21.60		
116. Wilmington and Reading (Del.).....	51.69	51.69	1,500,000
117. Wrightsville, York and Gettysburg.....	13.00	13.00	393,534
118. Wyoming Gravity (project).....	24.00		24,000
119. Zerhe Valley.....	15.10	15.10	1,000,000
Sundry coal and other roads not specifically accounted for estimated at.....	1,000.00	700.00	11,000,000
Total.....	6,512.91	5,056.66	\$286,739,037

STATE OF DELAWARE AND EASTERN MARYLAND.

Corporate Titles of Companies.	Length in Miles. Total.	Completed.	Cost of Road and Equip't.
1. Baltimore and Eastern Shore (project).....	66.50		\$6,650
2. Delaware (Del.).....	84.50	84.50	1,825,018
Branches (other).....	28.00	28.00	
3. Delaware and Pennsylvania (project).....			
4. Dorchester and Delaware (Del. & Md.).....	33.50	33.50	670,000
5. Eastern Shore (Md.).....	34.50	34.50	850,000
6. Junction and Breakwater (Del.).....	40.00	40.00	1,000,000
7. Kent County (Del. & Md.).....	28.00	28.00	1,000,000
Chestertown Branch (Md.).....	4.00	4.00	
8. Maryland and Delaware (Del. & Md.).....	51.00	51.00	1,200,000
9. Newcastle and Frenchtown (Del.).....	6.00	6.00	150,000
10. New Castle and Wilmington (Del.).....	5.50	5.50	150,000

Corporate Titles of Companies.	Length in Miles		Cost of Road and Equip't.
	Total.	Completed.	
11. Phila., Wilmington and Baltimore (Pa. & Md.)	23.09	23.09	2,343,566
12. Pocomoke and Wicomico (Md.)	23.00	23.00	275,000
13. Queen Anne and Kent (Md.)	31.00	10.00	250,000
14. Queenstown and Harrington (D. & M.)	82.00	.....	28,000
15. Wilmington and Reading (Pa.)	12.65	12.05	261,948
16. Worcester (Md.)	14.60	.....	28,440
Total.....	518.64	399.14	\$10,039,692

STATE OF MARYLAND (Other than above).

1. Annapolis and Elkridge.....	20.50	20.50	\$441,000
2. Baltimore and Ohio (W. Va.)	129.00	139.00	10,685,625
Branches and extensions.....	8.20	8.20	
Washington Line.....	30.00	30.00	
Metropolitan Branch.....	28.00	29.00	1,550,000
3. Baltimore and Pikesville (project).....	9.50	.....	1,600,000
4. Baltimore and Potomac (project).....	72.00	.....
Washington Branch.....	15.75	.....
5. Baltimore and Swan Lake (project).....	7.00	.....	70,000
6. Columbia and Port Deposit (Pa.).....	10.67	4.77	54,633
7. Cumberland Coal and Iron and Branches.....	11.67	11.97	1,000,000
Astor Mine Branch.....	2.23	2.23	
8. Cumberland and Pennsylvania.....	34.60	31.00	3,300,000
Branches, &c.....	19.40	19.00	1,000,000
9. Cumberland Valley (Pa.).....	13.00	6.00	
10. Emmitsburg (progress).....	11.00	.....
11. Frederick and Pennsylvania Line (progress).....	24.40	.....	240,000
12. Maryland Central (surveyed).....	11.50	.....	3,456,394
13. Mount Savage (iron).....	4.00	4.00	
14. Northern Central (Pa.).....	56.40	56.40	
Canton Extension.....	4.00	4.00	750,000
15. Oakington Branch (P. W. & B.).....	2.52	2.52	
16. Philadelphia and Baltimore Central (Pa.).....	10.00	10.00	
17. Philadelphia, Wilm. and Balt. (Del. & Pa.).....	54.49	54.49	3,266,091
Port Deposit Branch.....	3.81	3.81	
18. Pittsburg and Connellsville (Pa.).....	8.90	.....
19. Southern Maryland (project).....	78.00	.....	400,000
20. Union (project) Baltimore.....	4.50	.....	4,000
21. Washington County.....	21.00	21.00	600,000
22. Western Maryland.....	121.00	53.00	3,000,000
23. Worthington Valley.....	22.50	.....	12,000
Total.....	840.34	495.49	\$34,723,367

STATE OF WEST VIRGINIA.

1. Baltimore and Ohio (Md.).....	241.00	241.00	\$12,537,162
2. Chesapeake and Ohio (Va.).....	212.01	10.00	5,000,000
3. Hempfield (Pa.).....	9.00	9.00	267,961
4. Iron Valley (B. & O. R. R.).....	3.25	3.25	100,000
5. Parkersburg Branch (N. W. Va. R. R.).....	103.50	103.50	6,000,000
6. Pittsburg, Cin. and St. Louis (Pa. & O.).....	8.00	8.00	635,175
7. West Virginia Central (project).....	135.00	.....	13,500
Total.....	711.75	374.75	\$30,493,739

STATE OF VIRGINIA.

1. Alexandria and Fredericksburg (Potomac).....	40.00	.....	\$1,000,000
2. Alexandria and Georgetown (via Aqueduct).....	4.00	.....	.....
3. Alexandria, Georgetown and Washington.....	7.00	7.00	250,000
4. Alexandria, Loudoun and Hampshire (name changed to Washington and Ohio).....	.....	.....	.....
5. Atlantic, Mississippi and Ohio, viz:			
Norfolk and Petersburg.....	81.00	81.00	2,479,355
South Side.....	123.00	123.00	4,149,658
City Point Branch.....	10.00	10.00	.....
Virginia and Tennessee.....	504.24	504.24	8,012,873
Salt Works Branch.....	9.42	9.42	.....
Other Branches.....	1.20	1.20	172,392
Virginia and Kentucky.....	95.00	.....	1,674,723
6. Blue Ridge (State Road).....	16.81	16.81	7,000,000
7. Chesapeake and Ohio (Virginia Central).....	347.00	213.63	436,000
8. Clover Hill.....	21.50	21.50	1,000,000
9. Fredericksburg and Gordonsville.....	62.00	.....	200,000
10. Georgetown and Leesburg (project).....	50.00	.....	100,000
11. Lynchburg and Danville (project).....	100.00	.....	.....
12. Norfolk and Great Western (project).....	100.00	.....	.....
13. Norfolk and Petersburg (Atl., Miss. & O.).....	.....	.....	.....
14. Orange, Alexandria and Manassas Gap, viz:			
Alexandria to Gordonsville.....	83.30	83.30	59.50
Charlottesville to Lynchburg.....	59.50	50.50	112.00
Manassas Junction to Harrisonburg.....	112.00	112.00	8.90
Warrenton Branch.....	8.90	8.90	1.00
Front Royal Branch.....	1.00	1.00	.....
15. Petersburg (N. Car.).....	52.50	52.50	12.30
Gaston Branch (N. Car.).....	12.30	12.30	135.50
16. Richmond and Danville (N. Car.).....	135.50	135.50	1.14
Middleton Branch.....	1.14	1.14	1.56
Manchester Branch.....	1.56	1.56	75.50
17. Richmond, Fredericksburg and Potomac.....	75.50	75.50	3.50
Springfield Branch.....	3.50	3.50	10.00
Brook's Station to Quantico.....	10.00	.....	22.14
18. Richmond and Petersburg.....	22.14	22.14	2.15
Port Waltham Branch.....	2.15	2.75	59.30
19. Richmond and York River.....	59.30	38.30	6.00
20. Roanoke Valley (N. Car.).....	6.00	6.00	17.00
21. Saltville and Coal Mine (project).....	17.00	.....	53.25
22. Seaboard and Roanoke (N. Car.).....	53.25	53.25	.....
23. South Side (Atl., Miss. & O.).....	.....	.....	.....
24. Virginia and Kentucky (Atl., Miss. & O.).....	.....	.....	.....
25. Virginia and Tennessee (Atl., Miss. & O.).....	.....	.....	113.60
26. Virginia Valley (project).....	113.60	.....	170.00
27. Washington and Ohio (Alex., Loud. & Hamp.).....	170.00	59.00	32.00
28. Winchester and Potomac (B. & Ohio).....	32.00	32.00	19.00
29. Winchester and Strasburg.....	19.00	19.00	.....
Total.....	2,933.72	1,465.96	\$53,380,858

STATE OF NORTH CAROLINA.

1. Air Line, or Atlanta & Richmond (progress).....	92.00	.....	\$290,000
2. Atlantic and North Carolina.....	94.92	94.92	2,178,960
3. Charlotte, Columbia and Augusta (S. Car.).....	6.00	6.00	145,294

Corporate Titles of Companies.	Length in Miles		Cost of Road and Equip't.
	Total.	Completed.	
4. Chatham.....	46.00	30.00	2,500,000
5. French Broad (progress).....	40.00	30.00	1,000,000
6. North Carolina.....	223.00	223.00	4,918,746
7. Petersburg (Va.).....	8.50	8.50	326,407
Gaston Branch.....	9.00	9.00	
8. Piedmont.....	48.50	48.50	2,190,000
9. Raleigh and Gaston.....	17.00	9.00	2,000,000
10. Richmond and Danville (Va.).....	5.00	5.00	231.00
11. Roanoke Valley (Va.).....	37.00	14.00	2,171.90
12. Seaboard and Roanoke (Va.).....	26.75	26.75	579,211
13. Western (Coa.).....	43.00	43.00	1,213,129
14. Western North Carolina.....	142.00	142.00	3,500,000
Branches to Newton and Lime Bed.....	8.00	8.00	
Western Division.....	131.00	.....	2,500,000
15. Wilmington, Charlotte and Rutherford.....	123.00	123.00	3,600,000
Western Division.....	151.00	25.00	1,522,712
16. Wilmington and Manchester (S. Car.).....	63.50	63.50	3,076,968
17. Wilmington and We don.....	162.00	162.00	.....
Tarboro' Branch.....	19.00	19.00	280.00
18. Williamston and Tarboro' (progress).....	18.00	.....	.....
Total.....	1,571.17	1,178.17	\$32,164,298

STATE OF SOUTH CAROLINA.

1. Air Line, or Atlanta & Richmond (progress).....	100.00	.....	1,600,000
2. Blue Ridge.....	53.50	43.00	4,000,000
Branch.....	1.50	1.50	.....
3. Charlotte, Columbia and Augusta (S. Car.).....	188.00	188.00	4,576,779
4. Cheraw and Darlington.....	40.30	40.30	600,000
5. Cheraw and Salisbury (project).....	63.00	.....	63,000
6. Columbia and Augusta (consol. in C. C. & A.).....	.....	.....	.....
7. Greenville and Columbia.....	143.25	112.25	3,081,213
Albany Branch.....	1.50	1.50	
Anderson Branch.....	9.50	9.50	.....
8. King's Mountain.....	22.50	22.50	249,000
9. Laurens.....	22.00	22.00	640,000
10. North Eastern.....	102.00	102.00	2,148,140
11. Port Royal (progress).....	110.00	46.00	1,210,000
12. Savannah and Charleston (Ga.).....	88.52	88.52	1,927,672
13. South Carolina.....	137.00	137.00	8,920,611
Columbia Branch.....	68.00	68.00	
Candon Branch.....	38.00	38.00	
14. Spartanburg and Union.....	68.00	68.00	1,340,882
15. Wilmington and Manchester (N. Car.).....	99.00	99.00	2,591,311
Total.....	1,438.17	1,138.67	\$32,863,588

STATE OF GEORGIA.

1. Atlanta and West Point.....	86.74	86.74	1,200,235
2. Atlantic and Gulf.....	237.00	237.00	5,380,963
Florida Branch (Pa.).....	29.00	29.00	
3. Augusta and Savannah.....	53.00	53.00	1,032,200
4. Barnesville and Thomaston.....	16.00	16.00	200,400
5. Brunswick and Albany.....	25.06	60.00	1,200,000
6. Central of Georgia.....	192.00	192.00	4,703,877
7. East Tennessee, Virginia and Georgia (Tenn.).....	14.08	14.08	752,721
8. Etowah.....	8.87	8.87	175,000
9. Georgia.....	171.00	171.00	4,156,000
Athens Branch.....	39.00	39.00	
Warrenton Branch.....	4.00	4.00	
Washington Branch.....	1.00	1.00	.....
10. Georgia Air Line (Atlanta and Richmond).....	120.00	49.00	2,000,000
11. Macon and Augusta.....	62.00	57.00	2,500,000
12. Macon and Brunswick.....	185.00	185.00	4,500,000
Hawkinsville Branch.....	10.00	10.00	.....
13. Macon and Western.....	102.50	102.50	2,000,000
14. Milledgeville and Eatonton.....	28.21	28.21	766,200
15. North Eastern (Athens to Clayton).....	88.00	.....	.....
16. Rome and King-ton.....	20.00	20.00	235,235
17. Savannah, Griffin and North Alabama (Ala.).....	67.00	34.00	1,000,000
18. Savannah and Charleston (S. Car.).....	15.00	1.00	382,967
19. Savannah, Skidaway and Seaboard (progress).....	8.50	8.50	200,000
20. Selma, Rome and Dalton (Ala.).....	55.00	55.00	2,000,000
21. South Georgia and Florida.....	57.00	57.00	1,500,000
22. Southwestern.....	143.00	143.00	4,587,313
Fort Valley to Columbus.....	71.00	71.00	
Smithville to Albany.....	23.50	23.50	
Cuthbert to Fort Gaines.....	30.00	30.00	.....
23. Western and Atlantic (Tenn.).....	124.20	124.20	4,500,000
Total.....	2,313.70	1,932.70	\$44,322,919

STATE OF ALABAMA.

1. Alabama and Chattanooga (Miss.).....	220.00	200.00	\$9,000,000
2. Alabama and Florida Union (project).....	.....	.....	.....
3. Marion and Cahawba.....	32.00	32.00	1,000,000
4. Memphis, Holly Springs and Selma (Miss.).....	.....	.....	.....
5. Memphis and Charleston (Tenn. & Miss.).....	148.80	148.80	4,584,371
Florence Branch.....	6.00	6.00	.....
Tusculum Branch.....	2.00	2.00	.....
6. Memphis and Savannah (project).....	.....	.....	.....
7. Miss., Gainesville and Tuscaloosa (Miss.).....	79.00	16.00	350,000
8. Mobile and Girard.....	224.00	83.29	1,729,462
9. Mobile and Montgomery.....	180.00	164.00	4,231,889
10. Mobile and Ohio (Miss., Tenn. & Ky.).....	63.00	63.00	1,614,942
11. Montgomery and Eufaula.....	80.00	40.00	1,195,930
12. Montgomery and West Point.....	88.50	88.50	2,506,870
Opelika Branch.....	28.40	28.40	
13. Nashville and Decatur (Tenn.).....	26.00	26.00	293,074
14. Nashville and Chattanooga (Tenn.).....	27.00	27.00	865,644
15. New Orleans, Mobile and Chattanooga (M. & L.).....	30.00	20.00	1,300,000
16. North Western.....	11.50	11.50	230,000
17. Savannah, Griffin and North Alabama (Ga.).....	46.00	.....	2,000,000
18. Selma and Gulf.....	100.00	40.00	2,165,664
19. Selma and Meridian.....	81.30	81.30	7,500,000
20. Selma, Rome and Dalton (Ga.).....	176.00	176.00	120,000
21. South Alabama (Columbia to Pollard).....	120.00	.....	3,000,000
22. South and North Alabama.....	183.00	93.00	25,500
23. Tennessee and Coosa Rivers (project).....	36.50	.....	2,000,000
24. Western (Montgomery to Selma).....	44.00	44.00	20,000
25. Winchester and Huntsville (project).....	20.00	.....	.....
Total.....	2,150.00	1,396.60	\$40,598,605

Life Insurance.

We have from time to time called the attention of our readers to the progress of Life Assurance in the United States, and although we did not name any particular company whose affairs we considered doubtful, yet we spoke of certain extravagancies, and what we regarded as bad management, that we feared would sooner or later produce unfortunate results.

We also indicated our suspicions by referring to the affairs of a Life Company that we thought were under the soundest direction, and that bore a striking contrast to those of such other organizations as were making a grand display, and very much more noise about the extent and profit of their business.

But these warnings passed, so far as we know, unheeded. The Life Companies have had such a career of prosperity, and have been so energetically presented in all parts of the country, that they have been looked upon as impregnable, in spite of their violation of nearly every sound financial principle, if not of the ordinary rules of business.

The recent failure, however, of two of these great companies, has startled our people, and they are now demanding a more thorough examination into the standing of all these organizations, than has ever been had before. By this means we shall find out what companies have a sufficient capital to meet their liabilities, and a safe and profitable investment of their funds, and whose expenditures are legitimate and reasonable with the amount of business done, as well as those that spend their funds in puffing and show, and in sustaining agents that do little or no business, other than to stand about and blow strong, and become the custodians of their company's funds, and in paying extravagant salaries to incompetent or indifferent officers.

There are good, strong, well managed, and reliable Life Insurance Companies in the United States, as are to be found in the world, and there are others as weak and as flimsy as possible, and yet hold together. Some of them are the most outrageous frauds that were ever practiced upon our people. For the good of all concerned, the probing process now inaugurated by the failure of the Home and Great Western Companies, should reach to the very bottom, and the weak and bogus concerns driven to the wall, and a comparative exhibit of the status and management of such substantial companies as the New York Mutual and Knickerhocker, etc., officially given to the world.

This cleaning out process is a necessity for the good companies, as they suffer to a certain extent by any disparagement brought upon the system.

They ought, therefore, to demand the most thorough investigation, and at the same time, look into their own condition, with a view to

the adoption of new economies and such reforms as are warranted by experience, and will give greater safety and profit to their policy holders

CINCINNATI & INDIANA RAILROAD—At a meeting of the stockholders of this road, on the 19th, the following were elected Directors for 1871: M. E. Ingalls, T. H. Perkins, Boston; J. S. Kennedy, New York; W. T. Boaz, W. S. Groesbeck, S. J. Broadwell, A. M. Stimson, Cincinnati.

A Meritorious Invention.

Any invention which will tend to lessen the liability of accidents on railroads, is worthy of special attention, and should be thoroughly tested. We were shown recently an ingenious and simple invention designed to notify the engineer of any train upon which it may be placed of any accident to the running gear of the cars. It consists of an electric apparatus, connected with all the cars on the train, and is so arranged that the instant a wheel or truck leaves the track or meets with any obstruction, the electric current is broken and the engineer on the locomotive is notified by the tapping of a gong located in the cab of an engine. The connection is made in a very simple but substantial manner, and is so arranged that it is almost impossible for it to get out of order. The battery, gong, etc., are placed on the engine, and the wires forming the circuit are placed in such a position on each car truck, that when a wheel is thrown from the track the electric circuit is broken, and the ringing of the gong gives instant notice of the accident. The utility of the apparatus is apparent, as it frequently happens that when a car jumps or is thrown from the track that the engineer is not aware of the accident until he has proceeded some distance, or until a crash occurs. By this invention it is claimed that the notification would be almost instantaneous, and that frequently the engineer would be able to avert all danger to cars or passengers. The invention can also be applied so as to take the place of a bell rope on passenger trains, and as a means of communication between the engineer and conductor of freight trains. The inventor, Mr. Wm. Gillett, is a resident of Allegheny, and is now in communication with several prominent railroad officials. It is probable that the apparatus will be placed on several trains on the roads centering here for the purpose of giving it a practical test.—*Pittsburg Evening Chronicle*.

Progress at the Hoosac tunnel during November: East end, 133 feet; west end, 63 feet of brick arch; west shaft, 130 feet; central shaft, both headings, 16 feet. Previous to the present contract forty feet was more than the average monthly progress.

—A new railroad to be called the Lackawanna & Susquehanna, has been put under contract, and it is expected to be finished in nine months. It will form an important link in the Delaware and Hudson Company's improvements. It is twenty-one and a half miles in length, and forms a connection with the Jefferson Railroad, one and a half miles south of Landboro', whence it forms a connection with the Albany & Susquehanna at Ninevah.



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29-9-70, 27



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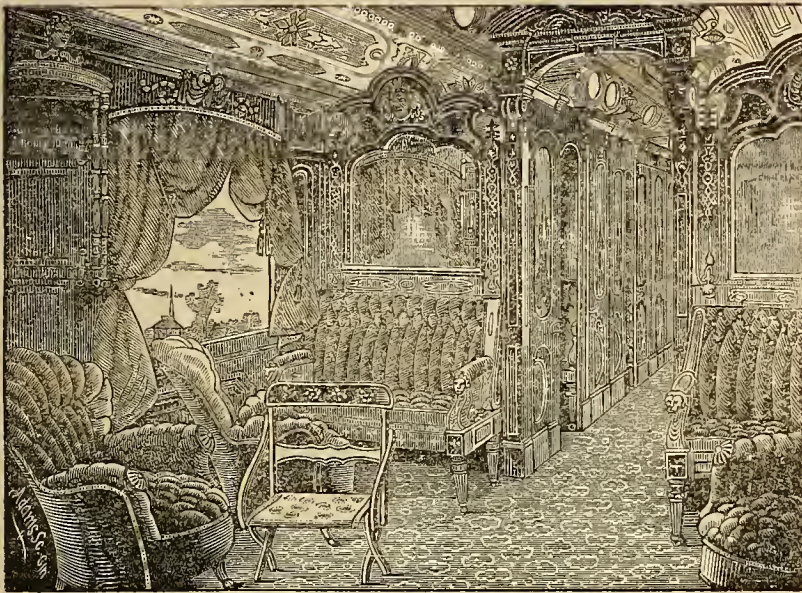
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9.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Galion, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst.); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburg, Ft. Wayne & Chicago Railway for Pittsburg, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

Boston and New England Passengers,

with their Baggage, are transferred **FREE**

OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach the city by a portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through

And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 20 West Fourth Street, 115 Vine Street, 4 Burnet House, and foot of Broadway (Spencer House Block) and at all principal Ticket Offices in the South and South-west.

W. B. SHATTUCK, Gen. Pass'r Agt.

W. B. SHATTUCK, General Southern Agent.

Best Route to St. Louis and Chicago

INDIANAPOLIS,

CINCINNATI

—AND—

LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy, Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West, North-west and South-west.

The 7.35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1893, TRAINS WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 am
St. Louis and Springfield Express....	2.40 pm	7.35 am
St. Louis and Springfield Express. In 20	2.40 pm	3.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.10 pm	8.25 am

*The 10.10 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & C. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.

F. B. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

	DEPART.	ARRIVE.
Eastern Express (Erie Railway).....	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:30 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:05 A. M.
do do do .....	.....	6:50 A. M.

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the depot office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.

SAM'L STEPHENSON, Gen'l Ticket Ag't.

Omnibuses call for passengers.

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,

No. 27 West Third Street, Cincinnati.

W. P. SHINK, General Freight Agent.

Pittsburgh, Pa.

LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.

On and after June 12, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sunday). Stops regularly at Walton, Ellettsburg, Sparta, Liberty, Worthville, Campbellsville, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glasgow, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHEAST FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sunday). Stops regularly at Walton, Ellettsburg, Sparta, Liberty, Worthville, Campbellsville, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Ellettsburg, Sparta, Liberty, Eagle, Campbellsville, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.12 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South. More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY STEEFEE, Gen. Ticket Agt.

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1893. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuckahoe, &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.

12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Saturdays,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Pittsburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:40, 2:40, 3:40, 3:55, 4:15, 4.30, 4:45, 5:10, 5:25, 5:45, 6:00, 6:25, 7:40, 7:52, 7:50, 8:00, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y., at No. 1 Astor House; Nos. 354, 271, 536 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent.

W. J. LUDWIG, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - - }
A. J. HODDER, - - - - - }

CINCINNATI, THURSDAY, FEBRUARY 2, 1871.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
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" " six months.....	135 00
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Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'r's.

The Northern Pacific Railroad.

We understand that an effort is now to be made to construct the Northern Pacific railroad. The readers of the RECORD will recollect, that we have always been in favor of three Pacific roads, and consider them necessary to the ultimate development of the country. Many years ago, we did what we could to advance the interests of the Southern Texas road, and which, we believe, is about being recommenced. Of these three Pacific routes, we have no doubt, that the Northern Pacific has decidedly the advantage. A railroad is of no great use, (that is a very long railroad) unless it *develops* the country through which it passes, which again, it can not do unless the soil is good, and the climate favorable. Here is the difficulty with the Union Pacific and the route now proposed for the Southern Pacific. For the greater part of the way, they are through a barren country, and without sufficient water. These are difficulties not to be got over, and hence, we see that the Union Pacific does not cause any rapid settlement of the country or get any local business. It will not do either until the rich soils of the country are exhausted, and resort is had to the inferior, with manure and irrigation. But the whole case of the Northern Pacific is reversed—there is rich soil (for a great part of the way), a comparatively mild climate, and the isothermal lines of good vegetation. *That is to be proved*—you have a right to say. Yes, and perhaps a discussion of this matter, may lead to some inter-

esting and useful information, on an almost unknown part of our great continent. *First*, however, let us see what the land grant made to this road is, and *second*, what is its direction and general location:

1. The charter granted by the Congress of the United States of America to the Northern Pacific Railroad Company, with its amendments, confers the right to construct a line of railroad and telegraph across the continent, between some point on lake Superior, in the State of Wisconsin, or Minnesota, and some point on Puget's sound, *via* the valley of Columbia river, by the most eligible route, within the territory of the United States, on a line north of the 45th parallel of latitude, with a branch to Puget's sound, across the Cascade mountains, from some convenient point, or to main trunk lines. The term "Puget's sound" in the charter, is to be construed to mean "all the waters connected with the strait of Juan de Fuca within the territory of the United States"

The grant of *lands* is 25,600 acres per mile through the territories, and 12,800 acres per mile through the States. Besides this are grants of right of way for telegraphs, road, station houses, depots, &c., together with stone, lumber, &c. If, by squatters, under the homestead laws, the company can not get the amount granted, then it is at liberty to take the required amount anywhere within twenty miles. The company is, therefore, absolutely certain of the amount of land granted. The total amount of the grant is 50,000,000 acres—more than 10,000 square miles greater than the area of New England. This grant is equal to two States as large as Ohio, and seven times the area of Belgium. Such a land grant as this has never been made to any company, or any community on earth; and we say distinctly here, that *one-fifth* part of this grant, is enough to *pay the whole cost of the road*; provided, always, that the soil is good, that the climate is good for cultivation, and that the land is sufficiently watered by streams and rain. These conditions granted, the land grant to the Northern Pacific, will make five such roads, but this point we shall discuss in another number.

2. The general direction of the road is the next great point. If it should happen to be a saving of distance, and also pass through a fertile country, then this route will be obviously for the best—with strong probabilities of being in itself a most profitable road. What route then will it take? The route which it is at present proposed to take, is something like this: It will begin, as required by law, at "some point on lake Superior, in the State of Wisconsin, or Minnesota." We suppose this will be near Duluth, in Minnesota, thence on the highlands between Red river, and the Mississippi, to Fort Bertbold, on the Mississippi; thence in the valley of the Yellowstone to Deer Lodge pass, on the Rocky

mountains, and thence to some point on Puget's sound. This distance from Duluth to Puget's sound, is 1,400 miles only. This distance is, of course, much less than that on which a railway can be made. Nevertheless, the distance by this route is much less than that by the Union Pacific.

Northern route by rail, to Puget's sound.....	1,775 miles.
Union Pacific (Chicago to San Francisco).....	2,405 "
North Pacific gains.....	630 "

The real distance is much less, in consequence of having much lower grades.

On the routes which we have now considered, the Northern Pacific Railroad will be the shortest and cheapest route between Asia and Europe. The distance from New York may be shown thus:

	Via Chicago	Miles.	Via Duluth,	Miles.
N. Y. to San Francisco,	3,323,	To Puget's sound.....	3,140	
S. Francisco to Shanghai	7,110,	Puget's s. to Shanghai,	5,713	
N. Y. to Shanghai.....	10,423,		8,756	

We discover then that it is 630 miles nearer across by the Northern Pacific, and that it is 2,384 miles nearer to Shanghai from Puget's sound, than it is from San Francisco. These facts are astounding, and we say positively, that if the Northern Pacific Railroad be made, there can be no competition on the part of the Union Pacific with that in the trade of Asia. The following brief table of distances and heights, gives a striking view of the advantages of this route:

	Miles.	Average Height.
To Dacotah valley.....	300	1,200 feet.
To Yellowstone river.....	300	2,400 "
Along Yellowstone river.....	400	2,500 "
Feathered valley.....	300	3,500 "
Snake river.....	200	3,600 "
Puget sound.....	500	400 "

The profits of this route shows that it is in every point of view, greatly superior to that of the Union Pacific. This is so palpable, as we have already said, if the lands are fertile, cultivatable, good lands, one-fifth the quantity would make the road. But, supposing that they are average second rate lands, half the quantity would make the road, and leave an immense surplus to the stockholders. Under these circumstances, we hope, and we must believe, that the Northern Pacific road will be made early, without difficulty, and with great advantage to the stockholders.

The Dayton & Cincinnati Short Line Railroad.

This is one of the schemes that can't be killed, nor even scotched sufficiently to keep it quiet for more than about ninety days at a time. Like Banquo's ghost it will not down, though all the powers of at least two huge corporations are brought to bear against it. It is the vexed railroad question of the Miami valley, and like the everlasting Eastern question of Europe, there is no final settlement of it by compromise, or purchase, or intimidation. Do what you will, it will never cease to present itself at unexpected times, and in strange shapes, and to opposing interests, very unpleasant ways.

It has just sprung upon us anew with un-

sual vigor—surrounded by influences more potent than ever before. Such strong companies as the Cleveland & Columbus & Lake Shore, with the whole New York Central interests in the background, and the ancient Commodore thrown in, and its fast but feeblar friend, the Cincinnati, San-lusky & Cleveland Company, have given their endorsement to this scheme; and the papers say, that now (there is no doubt about it) the short line is going to be built.

Well, we certainly hope this is so. For years we have insisted, in this journal, and in more than an hundred speeches upon the subject, that it would be built—that it was only a question of time—that it was daily becoming a necessity, and that every railroad movement in this part of Ohio, tended towards this result, and may not the present attempt be the one long looked for, that will verify all these predictions, and place us high in reputation among the prophets?

We know there are persons who doubt whether this movement will result in vitalizing the new road. And there are others we know of who positively believe and say, that there is no intention on the part of the present schemers to make it. That it is a deep laid plan for the most selfish of personal purposes, and that this sanction of the stockholders of the roads we have mentioned, is only a part of the plot, that, though it gives the greatest semblance of good faith, is the most easily set aside whenever the occasion requires.

"O ye of little faith," we exclaim in reply; and yet these doubters and unbelievers advance arguments and reasons for their position that are not as readily put aside as one at a first glance would suppose. They say, (and in this instance we consider *"they say,"* entitled to respect), "that this is the eighth or tenth time that arrangements have been effected by which this same road was undoubtedly to be made." Well, what of it? What else could be done to secure this work, but make the eighth or tenth arrangement, when all others had failed? And what better can any one do than to make others up to any reasonable number, if this one should, like the rest, prove a fizzle? There is nothing in this argument against the present effort, rather does it tend in favor of it. But, we are answered, 'the same men are in the management who deceived us before. How can we have confidence in them? And these are the same companies that not a year since raised and pledged to the construction of this road more than a million of dollars, for which sum they now only propose to endorse. Is it in the nature of things—and particularly in human nature, that we can have faith in them?' These are strong points, we confess. Yet, they are not overwhelming, we think. These men may have reformed. Who knows? Or they have been a little too positive of their power to do what they promised.

Or they may have been themselves deceived. Or they may think, that having made handsomely in the old way, that they will now go for the profits of the new. Always provided, of course, that the old should not *"come down"*—so to speak, beyond all expectations—with more profit, less labor, and no risk, than are promised by the new. In such an event, of course the matter is understood. And as for these companies, what are they after all? Mere noses of wax to be turned and twisted according to the perverse will of their wise or foolish, selfish or liberal managers. They are poor miserable things, without consciences to give them an occasional twinge—or souls to send to perdition for their crimes—or bodies full of sensitive nerves to belabor and make sore. They are unaccountable things, and not to be regarded much by either sensible or honest men.

We are assured this all sounds very well, and also that it don't convince. Or to put the matter stronger, though perhaps homelier, we were told "that folks didn't put much store upon such excuses as that." We ourselves doubt whether they are very strong, but as they seem to us about the best that can be advanced in the premises, we hope they will command some little respect.

But there are other troubles in the way. People do say, though we are sorry to say people are not always reliable, at least we have known them when they were not, but in this case anyhow, they do say, that if all these other reasons are not well founded, that the aforesaid short line railroad is still in doubt just where it has been for years, because the same old opposing interests will buy the short liners out. We reply they can't. Why? Because the price is too high. "But they'll come down, sell out and pitch in anew" Never! "But they have over and over again. It's an old game, and always wins." But they are tired of this game, it's too costly. We cited facts, figures and lamentable examples. "Then they will make terms, compromise and divide the spoils, and if they can't agree upon these, there will be leasing and selling out, assignments and transfers and all manner of things that will supersede the necessity for making a new entrance from the north into this city. These corporations will have one and what more do they want? These men will by this process make large sums of money, and what else are they after?"

"Ah, there's the rub."

We caved. There was no reply to this. Besides, it came too thick and fast. Still we think and here again solemnly record our opinion, that the Dayton & Cincinnati Short Line Railroad will be built—that it is only a question of time, and may be that time is at hand. "So mote it be."

The New Virginia City.

Three years ago the writer of this article visited the Virginia Peninsula, and after a pretty thorough examination of all the points of interest in that historic territory, gave it as his opinion that here would arise a great maritime city, that would be the shipping point for a portion of the immense trade that is growing in the South-west.

At that time the Chesapeake & Ohio Railroad was only in embryo. Its friends were claiming great things for it as a new line to the sea, with vast local resources, and advantages in gradients and distance superior to those possessed by the other railway thoroughfares from the West to the Atlantic cities. But its sea terminus was not concluded upon, or, if it was, it was kept a secret, and the people of Richmond and Norfolk were allowed to speculate upon this important subject as they chose.

And afterwards, when the present company assumed the responsibility of constructing this road, and the public mind had become settled upon the certainty of its rapid completion, its eastern termination, in the minds of many, was still in doubt, or fixed at one of the points already mentioned.

In our examination of the question we had concluded that such a line of road would not stop at the navigable head of the James river, from which the sea could only be reached by a tortuous course of one hundred and sixty miles; nor would it probably seek its principal terminus down the South Side at Norfolk, at the expense of adding to its length and the inconvenience of a change of gauge; when it could be extended to Hampton roads in a distance of about seventy miles, through a country so level and well supplied with material for railway construction, that the cost will be less per mile than that of any part of the whole line—and the gradients less even than the most favorable upon any other part of the road, and its capacity for local traffic equal if not superior to that of the famous Shenandoah Valley.

This favored spot we had located at the extreme point of the Peninsula, now known as Newport News, where there is high ground, a fertile soil, an abundant supply of pure, fresh water, good anchorage, a harbor capacious as any in the world, with water deep enough to float the Great Eastern, and not subject to material tidal changes.

Last summer the writer revisited this interesting locality, and re-examined the rival points for the coming Atlantic city in Virginia, Richmond, Norfolk, City Point, Newport News, Hampton, West Point, Poo-Yankee Tank and Yorktown, were all visited, and their respective claims considered, unbiased by interests of any kind, and with all the aid that could be obtained from experienced pilots upon the rivers, and an examination of the charts and surveys of these localities made by both the U. S. and Confederate governments during the war. And his conclusions were, that either York-

— Last year cotton to the value of \$225,000,000 was exported from the United States.

town or Newport News must be the chosen spot, and that the natural advantages were in favor of the latter.

The details of this tour were given to our readers in a series of editorial letters in this journal, under the head of "Virginia Notes." In some of these epistles it was predicted that among the very best real estate speculations then offering in the country were to be obtained in and about these two places. Whether any of our readers took this hint, and laid the basis of their fortunes, we do not know; but we find from a late number of the *New York Herald* that some of the wealthiest and most sagacious operators of New York have made heavy investments in and about Yorktown, which looks as though that place had been concluded upon as the sea terminus of the Chesapeake & Ohio Railway.

The *Herald* says:

"The following are the particulars of lands purchased at Yorktown, between the York and James rivers, since October 20, 1870: The Anderson estate, containing 1,150 acres in and around Yorktown, fronting on the York river, purchased by William H. Aspinwall and the company; also R. D. Lee's land, containing 2,500 acres; Wm. H. Lees, containing 270 acres, fronting on James river; Robert A. Bright's, 1,100 acres; C. Gallagher's, 300 acres; Ed. Harwood's, 60 acres; Wall tract, 271 acres; Boivar Sheild's, 170 acres; D. B. Groff's, 317 acres; N. K. Eagle's, 800 acres; Walter Darlington's, 50 acres; Robert Armistead's, 120 acres; Willis Lee's, 45 acres; the Wynn Mill farm, 720 acres owned by H. H. Wynn. Lands purchased by Wolf & Heyman, of New York, as follows: The Power tract, at Yorktown, 225 acres; Nash tract, at Warwick river, 3,100 acres; Minor's, 200 acres; W. H. Lee's, 60 acres; Hubbard tract, fronting the York river, 75 acres.

The following purchases have also been made: Edward Kirby, of Brooklyn, N. Y., 'Indian field,' on the York river, 600 acres; Metrah Makely, of Washington, D. C., 75 acres; Y. B. Choles, of New York, 'Grove farm,' on the James river, 850 acres; T. J. Mulford, of New Jersey, 450 acres on the Poquosin river; William Bennett, of Pennsylvania, 265 acres; John G. Williams and Samuel Engle, of New York, the 'Warren farm,' fronting on the York river, 1,800 acres; Capt. H. C. Decker, of Staten Island, 300 acres; John J. Hovey, of New York, 200 acres; J. Carpenter, of New York, 150 acres; Charles Gallagher & Son, of New York, 45 acres adjoining the National Cemetery, Yorktown; Mr. W. T. B. Milliken, of New York, 225 acres on the York river; Willard Smith, of the New Jersey Central Railroad, Spratley's farm, on James river, 1,000 acres; T. J. Smith, Col. Duphey's residence and 300 acres, at Williamsburg; Wm. Jolly, of New York, 150 acres near Williamsburg, and 50 acres near Yorktown; H. K. Thurber, 'Bigler farm,' 2,500 acres; W. D. Shurz, of Baltimore, and Henry Halstead, of New York, 'Temple farm,' on York river, 500 acres; Dr. John P. Tabb's plantation of 1,800 acres, by George Hughes, of New York, for \$60,000; also the Almont plantation of 850 acres, by Mr. Duncan, of St. Louis, for \$43,500.

By Mr. James P. Ash, 75 acres, one mile from Yorktown.

By W. A. Cooper, 125 acres on the York river."

We are still of the opinion, however, that these purchases will continue until they include the property at Newport News, unless the present holders thereof ask exorbitant

prices, and that the great shipping point will yet be made where all the natural features are so favorable for it—where McClellan landed his troops for his Peninsular campaign, where the Merrimac and Monitor fought their world renowned battle, and where the shipping from foreign ports ride at anchor to receive their cargoes from Richmond and the interior.

Electric Signals.

AN ACCIDENT, ALMOST.

In a recent trip upon one of the railroads leading out of this city an event occurred that showed the importance, we might really say the necessity, of using the new railway signal of which we wrote a short time ago.

The train was moving at a rather slow rate through the heavy snow of Saturday last; as it approached a road crossing, on the one side was advancing at a reasonable pace a horse attached to a buggy in which was a gentleman and lady, absorbed in conversation and perfectly oblivious to the perils they were momentarily running into. Upon the other side was a team jogging along and driven by a man who must have been hard of hearing or lost in reverie, as he kept on without regard to the approaching train.

The horse and buggy were nearly on the rails, and the team within a few yards of it, and the train within a few rods of the crossing, before the engineer's eye caught the obstacle upon the track, and blew the whistle. This so frightened both teams that they started forward. As it turned out this was fortunate, as the buggy got off the track in time, and the team was checked before it reached the rails, and the train passed on.

Cases of this kind frequently cause the most frightful accidents. Whilst it is perhaps nonsense to say what might have happened, yet we may say, that in just such places, and by no greater obstructions than a team of horses or a wagon, trains are thrown off the track, cars burned up, property destroyed, and many lives lost.

Now this is one of the accidents that the Electric signal is calculated to prevent. Suppose that a large strong sounding gong had been placed upon the signboard that now notifies passers to "look out for the locomotive," and that when the train was within a mile of this place, it had compressed a little tappet near the track, that would have electrically raised a hammer and struck that gong. And when it was within a half or a quarter mile of this crossing, it had repeated the operation and sounded the alarm again. Is it not fair to presume that both these teams would have been startled by the noise, or that the gentleman and lady been aroused from their obliviousness, and the old man from his reverie? We think there can be no doubt about it. At any rate the chances for giving the notice of an approaching train that the signboard is intended to do, is more than doubled, and this is of itself a sufficient recommendation, we think, to secure its adoption by railway companies.

Burlington, Cedar Rapids & Minnesota Railroad.

We have received advices that this road is opened to Cedar Falls, Iowa, a distance of one hundred and sixty-two miles.

The main line is to run to Mankato, northwesterly through the State of Minnesota, a distance of three hundred and thirty miles; the two branches will be two hundred and twenty miles long, thus making a total length of five hundred and fifty miles.

The country through which this road will pass is known as the "Cedar Valley," and said to contain the densest agricultural settlement in the State of Iowa, and to possess the most fertile lands in the whole West.

It is perhaps not generally known, that the work upon this road was commenced about twenty months ago under the supervision of a construction company, of which our well known and esteemed fellow citizen, J. H. Potter, was president, and that it has steadily progressed, in spite of many obstacles, to its present strong position.

We are told that the road is thoroughly built, with chairs and rails of the most approved pattern and of the best material, and it is stocked completely, with locomotives built at Boston, freight cars from the works of Mowry & Co., of Cincinnati, and passenger cars from the shops of Barney, Smith & Co., of Dayton, Ohio.

Since the opening of the road, Mr. Potter has been appointed Superintendent, a position he is admirably calculated to fill by nature and experience.

The officers are: Hon. Geo. Green, President; James Putnam, Vice President; J. H. Daney, Treasurer; J. H. Potter, General Superintendent.

NAVIGATION OF RIVERS BY THE CABLE SYSTEM.—In Germany, the navigation of rivers by what is known as the "cable system" is making great advances at the present time. The engineer, Opel, is the principal promoter, if he can not be called the originator of the system, since by his improvements the principal difficulties in the application of wire cables to this purpose has been overcome. The system may be briefly described as consisting in the propulsion of boats on rivers and canals by winding on and off from a rotating drum driven by an engine on the boat, a cable previously laid lengthwise in the channels. An economy of power one-third over the system of paddle wheels is claimed. A cable of this kind has already been laid in the river Rhine; another is in progress in the Danube. One is in full operation on the Elbe, and several others in smaller rivers are successfully worked. The method supersedes the tow path for canals, and the washing of banks by ordinary means of propulsion is entirely obviated.

—The *Iowa State Register* (Des Moines) says: Between this city and Fort Dodge, on the Valley Road, over \$10,000 have been expended this fall in the construction of snow fences along that excellent route.

Railroads of the United States

A Tabular Statement showing the Length and Cost of each Work at the close of the financial year ending nearest to January 1, 1871.

(Continued from page 397.)

(Not including City Passenger Railroads.)

STATE OF FLORIDA.

Corporate Titles of Companies.	Length in Miles. Total.	Completed.	Cost of Road and Equipm't.
1. Atlantic and Gulf (Ga.)	20.00	20.00	\$961,919
2. Florida (Fernandina to Cedar Keys)	144.00	154.00	3,400,000
3. Florida and Alabama	45.20	45.20	1,200,000
4. Florida, Atlantic and Gulf Central	60.00	60.00	2,000,000
5. Jackson, Pensacola and Mobile (progress)	298.00	25.00	6,000,000
6. Pensacola and Georgia (Tallahassee)	130.00	130.00	4,500,000
Monticello Branch	4.00	4.00	
Tallahassee Branch	21.00	21.00	
7. Perdido and Junction	6.00	6.00	120,000
Total	607.20	440.20	\$11,781,919

STATE OF MISSISSIPPI.

1. Alabama and Chattanooga	20.00	20.00	\$920,000
Meridian to New Orleans (La.)	140.00		1,400,000
2. Grand Gulf and Port Gibson	8.00	8.00	200,000
3. Memphis and Charleston (Tenn. & Ala.)	38.50	38.50	1,155,782
4. Memphis, Holly Springs and Selma (Ala.)			
5. Mississippi Central (Tenn.)	188.60	188.60	6,053,114
6. Mississippi and Tennessee (Tenn.)	89.20	89.20	1,924,160
7. Mississippi, Gainesville and Tuscaloosa (Ala.)	6.00	6.00	135,000
8. Mobile and Ohio (Ky., Tenn. & Ala.)	270.00	270.00	11,808,741
Columbus Branch	14.50	14.50	
9. New Orleans, Jackson and Great Northern (La.)	117.00	117.00	4,631,245
10. New Orleans, Mobile and Chattanooga (A. & La.)	70.00	70.00	2,000,000
11. Raymond Branch	7.00	7.00	100,000
12. Vicksburg and Meridian	110.00	14.00	3,020,910
13. West Feliciana (La.)	9.00	9.00	100,000
Total	1,117.80	977.80	\$33,208,839

STATE OF LOUISIANA.

1. Alabama and Chattanooga (Miss.)	60.00		\$600,000
2. Baton Rouge, Gravelle and Opelousas	28.00	28.00	560,000
3. Berwick's Bay and Texas (project)	140.00		140,000
4. Clinton and Port Hudson	22.00	22.00	450,000
5. Mexican Gulf	27.00	27.00	665,000
6. Milburg and Lake Pontchartrain	6.00	6.00	220,000
7. New Orleans and Carrollton	6.50	6.50	665,000
Branches	9.00	9.00	
8. New Orleans, Jackson and Great Northern (Miss.)	89.00	89.00	3,522,798
9. N. O., Opelousas and Great Western (Morgan's)	10.50	10.50	6,250,000
Laplace Branch	2.00	2.00	
10. N. O., Mobile and Chattanooga (Miss. & Ala.)	40.00	40.00	1,600,000
Louisiana Division	226.00	60.00	1,800,000
11. North Louisiana and Texas	190.00	90.00	2,700,000
12. West Feliciana (Miss.)	18.00	18.00	360,000
Total	944.50	478.50	\$19,223,798

STATE OF TEXAS.

1. Buffalo Bayou, Brazos and Colorado	200.00	85.50	\$2,500,000
2. Columbus and San Antonio (project)	100.00		
3. Eastern Texas	400.00	31.00	1,000,000
4. Garretts, Houston and Henderson	50.25	50.25	2,800,000
Connecting Branch at Houston	1.75	1.75	
5. Houston and New Orleans	102.00	102.00	3,500,000
6. Houston and Brazoria	80.00	80.00	2,100,000
7. Houston and Texas Central	356.00	182.00	6,500,000
Austin Branch	110.00	38.00	
8. Indianola (progress)	10.00		
9. Memphis, El Paso and Pacific (project)	800.00		800,000
10. N. O., Mobile & Chattanooga (La. Miss. & Ala.)	109.00		1,000,000
11. Sabine and Rio Grande (project)	800.00		800,000
12. San Antonio and Mexican G. R.	135.00	28.00	500,000
13. Southern Pacific	800.00	56.00	2,000,000
14. Texas Transportation	5.50	5.50	200,000
Total	4,071.50	605.50	\$22,050,000

STATE OF ARKANSAS.

1. Arkansas Midland (Helena to Little Rock)	98.00		\$98,000
2. Arkansas Western (Van Buren to Mo. Line)	102.00		
3. Cairo and Fulton	301.00	20.00	600,000
4. Little Rock and Fort Smith	155.00	80.00	2,500,000
5. Little Rock, Pine Bluff and New Orleans	112.00	20.00	1,000,000
6. Memphis and Little Rock	131.00	131.00	4,000,000
7. Mississippi, Ouachita and Red River	155.00	20.00	600,000
Total	1,054.00	286.00	\$8,798,000

STATE OF TENNESSEE.

1. Cincinnati, Cumberland Gap and Charleston	94.00	44.00	\$1,500,000
2. East Tennessee, Virginia and Georgia (Ga.)	228.00	128.00	8,042,430
Chattanooga Branch	28.00	28.00	
3. East Tennessee and North Carolina (progress)	2.00		400,000
4. Edgefield and Kentucky	48.00	48.00	1,391,053
5. Knoxville and Charleston	53.00	16.00	1,000,000
6. Knoxville and Kentucky	65.00	31.00	2,300,000
7. Louisville and Nashville (Ky.)	107.50	45.00	1,075,000
8. Memphis and Charleston (Miss. & Ala.)	86.50	86.50	3,076,200
Somerville Branch	16.00	16.00	
9. Memphis, Clarksville and Louisville	82.50		3,037,000
10. Memphis and Ohio	130.00	170.00	3,800,000
11. McMinnville and Manchester	34.20	34.20	825,000
12. Mineral Hill	10.00	10.00	250,000
13. Mississippi Central (Miss.)	47.40	47.40	1,521,542
14. Mississippi River (Memphis to Cairo)	110.00		1,000,000
Branch to Troy	6.00		
15. Mississippi and Tennessee (Miss.)	10.00	10.00	272,860

Corporate Titles of Companies.

Length in Miles. Total Completed. Cost of Road and Equipm't.

16. Mobile and Ohio (Ky., Miss. & Ala.)	117.50	117.50	4,921,579
17. Nashville and Chattanooga (Ala.)	121.00	124.00	4,002,892
Shelbyville Branch	8.00	8.00	
Tracy City Branch	11.00	11.00	20,000
Jasper Branch	14.00	14.00	250,000
18. Nashville and Decatur (Ala.)	94.00	94.00	3,437,394
Mount Pleasant Branch	12.50	12.50	
19. Nashville and Northwestern (Ky.)	167.40	167.40	4,495,178
20. Rogersville and Jefferson	17.50	15.50	
21. Southwestern (project)	102.00		
22. Tennessee and Pacific (project)	17.00	30.00	1,200,000
23. Western and Atlantic (Ga.)	13.00	13.00	500,000
24. Winchester and Alabama	38.12	38.12	1,250,000
Total	2,016.08	1,490.03	\$31,528,745

STATE OF KENTUCKY.

1. Breckenridge Coal	8.50	8.50	\$370,000
2. Cincinnati Southern (project)			
3. Covington and Big Sandy (project)	120.00	12.00	
4. Eastern Kentucky	12.00	12.00	350,000
Branch to Mines	5.50	5.50	
5. Elizabethtown and Paducah (project)	185.00	43.00	2,000,000
6. Evansville, Henderson and Nashville	110.20	110.00	4,000,000
7. Kentucky Central (Cov. & Lex.)	80.00	80.00	4,500,000
Mayfield and Lexington	18.80	18.80	
8. Lexington and Big Sandy	12.00	12.00	350,000
Cashon Branch	0.75	0.75	
9. Lexington and Southern Kentucky	35.00	13.00	706,500
10. Louisville, Cincinnati and Lexington	93.50	93.50	2,186,910
Cincinnati Branch	77.60	77.60	4,633,441
11. Louisville, Harrodsburg and Virginia (project)			
12. Louisville and Nashville (Tenn.)	140.00	140.00	
Birdstown Branch	17.30	17.30	
Lebanon Branch	37.30	37.30	
Memphis Branch	46.00	46.00	
Lebanon Branch Extension	154.00	62.16	13,859,794
Richmond Branch	33.46	33.46	
13. Mayfield and Lexington (north part)	70.20		
14. Mississippi River (Tenn.)	41.00		
15. Mobile and Ohio (Tenn., Miss. & Ala.)	20.50	20.50	850,893
16. Nashville and Northwestern (Tenn.)	7.50	7.50	910,911
17. Paducah and Gulf	63.50	63.50	1,472,220
18. Portland and Louisville	5.00	5.00	100,000
Total	1,375.41	907.37	\$35,640,609

STATE OF OHIO.

1. Atlantic and Great Western (Penn. & N. Y.)	246.62	246.62	\$35,000,000
Silver Creek Branch	4.98	4.98	
Cleveland Branch (wide track)	48.92	48.92	
2. Carrollton and Oneida	12.00	15.00	101,000
3. Central Ohio (Balt. & Ohio)	104.08	104.08	5,505,935
Newark to Columbus (1/2 of 33 miles)	16.50	16.50	
4. Cincinnati and Baltimore (M. & C. R.)	55.00	7.00	350,000
5. Cincinnati, Hamilton and Dayton	60.13	60.13	5,295,395
Atlantic and Great Western track	60.13	60.13	
6. Cincinnati and Indiana	20.50	20.50	2,500,000
Harrison Branch	6.70	6.70	
7. Cincinnati and Indianapolis Junction (Ind.)	20.00	20.00	967,344
8. Cincinnati, Richmond and Chicago (Ind.)	36.00	36.00	947,885
9. Cincinnati, Sandusky and Cleveland	155.00	155.00	5,700,000
Findlay Branch	16.00	16.00	
10. Cincinnati and Zanesville	162.83	132.13	2,969,361
11. Cleveland, Columbus Ctn. & Indianapolis (Ind.)	256.94	256.94	9,371,777
Springfield Branch	59.89	49.99	
12. Cleveland and Pittsburgh	1.00	101.00	
Tuscarawas Extension	32.00	32.00	
Hanover Branch	1.50	1.50	
Beaver Extension (Pa.)	7.00	7.00	
Wheeling Extension	47.00	47.00	
13. Cleveland, Mount Vernon and Delaware	132.50	78.00	1,850,000
14. Columbus, Chicago & Indianapolis Central (Ill.)	117.40	117.40	7,465,129
Union City Branch	19.50	19.50	
15. Columbus and Hocking Valley	75.28	75.28	2,000,000
16. Columbus, Springfield and Cincinnati	20.00	20.00	346,000
17. Columbus and Xenia	54.69	54.69	1,840,633
18. Dayton and Michigan	141.37	141.37	6,471,899
19. Dayton and Union	31.81	31.81	599,084
20. Dayton and Western	36.00	36.00	1,087,779
21. Dayton, Xenia and Belpre (L. Miami)	15.26	15.26	415,000
22. Dayton and Cincinnati Short Line	60.00		
23. Iron	24.00	13.00	327,796
24. Lake Erie and Louisville	175.00	57.00	905,010
25. Lake Shore & Mich. South (N. Y., P. 1. M. & Ill.)	194.91	194.91	
Sandusky Branch	34.93	34.93	
Graytown Branch	8.93	8.93	
Air Line (Ind.)	65.40	65.40	
Detroit Line (Mich.)	7.70	7.70	
26. Lawrence (Penn.)	9.30	9.30	329,599
27. Little Miami	84.19	84.19	4,518,308
28. Mahoning (Clev. & Mahoning)	67.81	67.81	3,320,233
Hubbard Branch	12.37	12.37	
29. Marietta and Cincinnati	190.20	190.20	
Hillsboro Branch	21.00	21.00	19,655,014
Union Branch	9.00	9.00	
Portsmouth Branch	56.00	56.00	
30. Newark, Somerset and Straitsville (progress)	42.00		420,000
31. Niles and New Lisbon	53.00	13.00	30,000
32. Ohio and Mississippi (Ind. & Ill.)	19.53	19.53	1,670,720
33. Pittsburg, Cincinnati and St. Louis	117.40	117.40	
Cadiz Branch	7.50	7.50	
Newark to Columbus (1/2 of 33 miles)	16.50	16.50	
34. Pittsburg, Ft. Wayne and Chicago (P. 1. M. & Ill.)	251.30	211.30	12,892,964
35. Pittsburg, Mayfield & Cincinnati (suspended)	225.10		1,000,000
36. Sandusky, Mansfield and Newark	1.625	110.25	3,212,565
37. Springfield, Mt. Vernon and Pittsburg	135.00	65.00	1,550,000
Clinton to Massillon	13.00	13.00	
38. Toledo, Wabash and Western (Ind. & Ill.)	75.50	75.50	3,188,099
Roads not included above, being allowance for roads in progress or recently completed	600.00	200.00	5,000,000
Total	4,800.97	3,638.00	\$102,538,914

STATE OF MICHIGAN.

Corporate Titles of Companies.	Length in Miles		Cost of Road and Equip.
	Total.	Completed.	
1. Bay City and East Saginaw (F. & P. M.).....	13.00	13.00	\$352,725
2. Bay de Noquet and Marquette.....	130.00	45.00	1,991,775
3. Canada and Chicago (project).....	85.00	.....	.....
4. Chicago, Detroit and Grand Junction.....	59.00	59.00	2,500,000
5. Chicago and Michigan Lake Shore.....	94.00	94.00	2,500,000
Holland to Grand Rapids.....	26.00	.....	.....
6. Detroit, Adrian and Leansport (project).....	91.00	.....	.....
7. Detroit, Howell and Lansing (progress).....	84.50	.....	400,000
8. Detroit and Milwaukee (G. W. of Can.).....	189.00	189.00	11,467,320
9. Flint and Pere Marquette.....	189.50	109.00	3,500,000
10. Fort Wayne, Jackson and Saginaw (Ind.).....	45.00	45.00	1,350,000
11. Grand Rapids and Indiana (Ind.).....	270.00	150.00	5,000,000
12. Grand Rapids and Lake Shore.....	100.00	30.00	750,000
13. Grand River Valley.....	91.00	91.00	3,000,000
14. Holly, Wayne and Monroe (progress).....	64.00	.....	610,000
15. Ionia and Lansing.....	37.00	37.00	1,200,000
16. Kalamazoo, Allegan & Grand Rapids (L. Shore).....	28.00	58.00	1,600,000
17. Kalamazoo and South Haven.....	40.00	40.00	1,200,000
18. Jonesville, Marshall and Grand River (project).....	105.00	.....	.....
19. Lake Shore & Mich. South. (N. Y. P. O. I. & L.).....	115.00	115.00	.....
Adrian to Monroe.....	33.00	33.00	.....
Palmira to Jackson.....	44.00	44.00	.....
Constantine Branch.....	4.15	4.15	.....
Detroit, Monroe and Toledo (Ohio).....	51.82	51.82	12,197,318
20. Mansfield, Cold Water & Lake Mich. (project).....	10.00	.....	.....
21. Marshall and Cold Water (project).....	22.00	.....	.....
22. Michigan Air Line (Detroit to Jackson).....	100.00	100.00	3,500,000
Jackson to Niles (tense) to Mich. Central.....	221.00	221.00	12,656,659
23. Michigan Central (Ind. & Ill.).....	80.00	80.00	400,000
24. N. Y. P. O. I. & L. (Lansing to Ohio Line).....	4.00	4.00	100,000
25. Paw-Paw (P. P. to Lansing).....	67.50	67.50	4,856,625
26. Peninsula (Chicago & Northwestern R. R.).....	5.00	5.00	2,500,000
Branches and Extensions.....	108.00	45.00	1,000,000
27. Peninsular of Michigan.....	112.50	112.50	680,000
28. Port Huron and Chicago Air Line.....	34.00	34.00	.....
29. St. Joseph Valley (Lake Shore).....	.....	.....	.....
Total.....	2,992.36	1,733.36	\$75,817,748

STATE OF INDIANA.

1. Chicago, Cincinnati and Louisville.....	73.00	73.00	\$250,000
2. Chicago, Valparaiso and Southern (project).....	73.00	.....	.....
3. Cincinnati and Indianapolis Junction (Ohio).....	72.00	72.00	4,835,718
Louisville Branch (½ of 23 miles).....	40.00	40.00	800,000
4. Cincinnati and Martinsville (J. C. & L.).....	6.00	6.00	133,474
5. Cincinnati, Richmond and Chicago (Ohio).....	84.00	84.00	2,564,359
6. Cleveland, Columbus, Cincinnati & Ind. (O.).....	211.50	211.50	.....
7. Columbus, Chicago & Indianapolis Central (O.).....	72.50	72.50	253,822
Indianapolis Line.....	169.50	169.50	.....
Logansport and State Line.....	12.50	12.50	.....
Louisville Branch (½ of 23 miles).....	94.00	94.00	450,000
8. Columbus and Shelbyville.....	90.00	90.00	90,000
9. Evansville and Ellettsburg (progress).....	100.00	100.00	2,771,688
Rockville Extension.....	23.00	23.00	.....
10. Evansville and Indianapolis (project).....	50.00	.....	.....
11. Evansville and Southern Illinois (progress).....	32.00	.....	.....
12. Evansville, Terre Haute and Chicago (progress).....	50.00	50.00	1,360,000
13. Fort Wayne, Jackson and Saginaw (Mich.).....	109.00	109.00	2,800,000
14. Fort Wayne, Muncie and Cincinnati.....	120.00	120.00	1,500,000
15. Fort Wayne and Pacific (project).....	50.00	50.00	740,000
16. Grand Rapids and Indiana (Michigan).....	74.00	74.00	.....
17. Indiana and Illinois Central (I. & Ill.) in progress.....	74.00	74.00	.....
18. Indiana, North and South (project).....	78.00	78.00	2,750,000
19. Indianapolis, Bloomington and Western (Ill.).....	159.50	159.50	8,000,000
20. Indianapolis, Cincinnati and Lafayette.....	133.00	133.00	136,000
21. Indianapolis, La Porte & Mich. City (progress).....	73.00	73.00	2,500,000
22. Indianapolis, Peru and Chicago.....	26.00	26.00	.....
23. Indianapolis, Peru and Silver Lake (project).....	116.00	116.00	4,000,000
24. Indianapolis and Vincennes.....	108.00	108.00	.....
25. Jeffersonville, Madison and Indianapolis.....	46.00	46.00	6,027,242
Madison Division.....	6.00	6.00	.....
Jeffersonville-Madison Junction.....	15.00	15.00	43,234
26. Joliet and Indiana (Ill.).....	27.00	27.00	540,000
27. Knightstown and Shelbyville.....	115.00	115.00	.....
28. Lafayette, Muncie and Bloomington (project).....	101.00	101.00	78,571
29. Lake Shore & Mich. South. (N. Y. P. O. I. & L.).....	66.00	66.00	7,322,519
Goshen Air Line (Ohio).....	289.00	289.00	10,000,000
30. Louisville, New Albany and Chicago.....	109.00	109.00	300,000
31. Louisville, New Albany and St. Louis.....	51.00	51.00	2,920,770
32. Michigan Central (Mich. & Ill.).....	173.00	173.00	16,000,000
33. New Albany and St. Louis Air Line (project).....	53.00	53.00	820,000
34. Ohio and Mississippi (Ohio & Ill.).....	151.00	151.00	8,719,554
Louisville Branch.....	22.00	22.00	.....
35. Peninsular (Mich.) in progress.....	151.00	151.00	.....
36. Pittsburg, Ft. Wayne & Chicago (Pa. O. & Ill.).....	65.00	65.00	.....
37. Plymouth, Kankakee and Pacific (project).....	6.00	6.00	78,571
38. Richmond and Miami (Dayton & Western).....	20.00	20.00	320,000
39. Shelby and Rush.....	73.00	73.00	2,215,596
40. Terre Haute and Indianapolis.....	1.00	1.00	.....
Coal Branch.....	166.90	166.90	7,219,522
41. Toledo, Wabash and Western.....	5.00	5.00	350,000
42. Union Track (Indianapolis).....	72.00	72.00	2,500,000
43. White Water Valley.....	.....	.....	.....
Roads not accounted for, being roads in progress or lately completed.....	1000.00	200.00	5,000,000
Total.....	4,855.20	3,277.60	\$135,937,166

STATE OF ILLINOIS.

1. American Central (C. B. & Q.).....	180.00	50.75	\$1,500,000
2. Belleville and Southern Illinois.....	66.00	66.00	2,000,000
3. Cairo, Mound City and Vincennes (progress).....	150.00	.....	1,000,000
Paducah Branch (Raleigh to Liberty).....	30.00	30.00	750,000
4. Carthage and Burlington (C. B. & Q.).....	30.00	30.00	300,000
5. Clinton and Chicago Branch Junction.....	62.00	13.50	11,587,040
6. Chicago and Alton.....	243.00	243.00	.....
7. Chicago, Blue Island and Indiana (Peninsular).....	27.00	.....	.....

Corporate Titles of Companies.

Corporate Titles of Companies.	Length in Miles		Cost of Road and Equip't.
	Total.	Completed.	
8. Chicago, Burlington and Quincy.....	165.00	15.00	.....
Galesburg to Burlington.....	42.00	42.00	.....
Galesburg to Quincy.....	100.00	100.00	29,915,562
Galesburg to Peoria.....	53.00	53.00	.....
Aurora to Peoria.....	13.00	13.00	.....
Yates City to Leawards.....	30.00	30.00	.....
9. Chicago and Northwestern (Wisc.).....	74.00	74.00	.....
Chicago to St. Louis (Gal. & Chi.).....	91.00	91.00	.....
Clinton Line.....	138.00	138.00	25,119,732
Rockford Line.....	33.00	33.00	.....
Madison Line (Wisc.).....	19.00	19.00	.....
Rockford-Kenosha Line (Wisc.).....	32.00	32.00	.....
10. Chicago, Danville and Vincennes.....	140.00	82.00	3,500,000
11. Chicago and Milwaukee (Wisc.).....	45.00	45.00	2,300,000
12. Chicago, Pekin and Southwestern.....	134.00	20.00	1,004,000
13. Chicago, Rock Island and Pacific (Iowa).....	182.00	182.00	8,016,511
Port Byron Branch.....	11.00	11.00	.....
14. Chicago and Rock River (progress).....	100.00	.....	.....
15. Decatur and East St. Louis (F. W. & Western).....	105.00	105.00	3,500,000
16. Dixon, Peoria and Hannibal (C. B. & Q.).....	91.00	91.00	2,500,000
17. Evansville, Carmi and Paducah (project).....	56.00	.....	.....
18. Hannibal and Naples (F. W. & Western).....	44.00	44.00	1,250,000
Pittsburg to Maysville.....	6.00	6.00	.....
19. Illinois Central.....	308.75	308.75	22,745,264
Galena Branch.....	252.20	252.20	.....
Chicago Branch.....	146.50	146.50	.....
20. Illinois Coal.....	4.00	4.00	100,000
21. Indiana and Illinois Central (Ind.) in progress.....	7.00	7.00	7,000,000
22. Indianapolis, Bloomington and Western (Ind.).....	126.50	126.50	4,500,000
23. Joliet and Chicago (Chicago & Alton).....	37.00	37.00	2,000,000
24. Joliet and Northern Indiana (Ind.).....	30.00	30.00	806,608
25. Kankakee and Illinois River (project).....	100.00	.....	.....
26. Lafayette, Bloomington and Mississippi.....	178.00	30.00	1,000,000
27. Michigan Central (Mich. & Ind.).....	12.00	12.00	684,242
28. Mound City.....	3.50	3.50	100,000
29. Muncie Line, Kewanee and Eastern (project).....	290.00	.....	.....
30. Ohio and Mississippi (Ohio & Ind.).....	148.00	148.00	12,656,659
31. Panama and Louisiana (project).....	101.00	.....	.....
32. Peoria, Lincoln and Decatur (T. W. & W.).....	65.00	21.00	1,000,000
33. Peoria, Atlanta and Decatur (progress).....	70.00	70.00	70,000
34. Peoria and Bureau Valley (C. B. & Q.).....	46.00	46.00	2,000,000
35. Peoria and Hannibal (C. B. & Q.).....	80.00	30.00	700,000
36. Peoria, Pekin and Jacksonville.....	161.50	83.00	3,000,000
37. Peoria and Rock Island (Ind. Coal Val. R. R.).....	90.00	42.00	1,600,000
38. Peoria and Winona (project).....	50.00	.....	.....
39. Pittsburg, Ft. Wayne & Chicago (Pa. O. & Ind.).....	18.00	18.00	591,712
40. Quincy and Carthage (progress).....	50.00	.....	500,000
41. Rockford, Rock Island and St. Louis.....	333.00	300.00	12,500,000
Branch to Cleveland and Perry's.....	30.00	30.00	.....
Branch to East Burlington.....	40.00	40.00	.....
42. St. Louis, Alton and Terre Haute.....	175.00	175.00	11,940,000
St. Louis Branch.....	20.00	20.00	.....
Belleville Branch.....	14.00	14.00	.....
43. St. Louis, Jacksonville and Chicago.....	151.00	151.00	5,000,000
44. St. Louis and South Eastern.....	159.00	78.00	2,800,000
45. St. Louis, Vandalia and Terre Haute.....	158.00	158.00	9,000,000
46. Springfield and Illinois South Eastern.....	1.00	42.00	2,000,000
Springfield to Beardstown.....	45.00	45.00	.....
47. Sycamore and Cortland.....	5.00	5.00	100,000
48. Toledo, Peoria and Warsaw.....	230.00	230.00	9,500,000
Burlington Branch.....	19.00	19.00	.....
49. Toledo, Wabash and Western (Ohio & Ind.).....	212.00	212.00	12,500,000
Naples Branch.....	4.00	4.00	.....
Keokuk Branch.....	41.20	41.20	.....
50. Western Union (Wisc.).....	112.00	112.00	4,500,000
Roads not included in above, being roads in progress and recently opened, and a large number of mineral roads.....	2000.00	600.00	20,000,000
Total.....	8,813.35	5,423.10	\$237,553,000

STATE OF WISCONSIN.

1. Chicago and Milwaukee (Ill.).....	40.00	40.00	\$1,870,000
2. Chicago and Northwestern (Ill.).....	174.50	174.50	.....
Madison Line.....	48.00	48.00	18,972,452
Kenosha Line.....	40.00	40.00	.....
3. Dubuque, Platteville and Monroe.....	56.50	21.00	500,000
4. Green Bay and Lake Pepin (progress).....	170.00	.....	170,000
5. La Crosse, Trempealeau & Prescott (C. & N. W.).....	27.00	27.00	1,000,000
6. Manitowish and Mississippi.....	25.00	7.50	200,000
7. Milwaukee and Northern.....	96.00	29.00	600,000
8. Milwaukee and Rockford (project).....	85.00	.....	.....
9. Milwaukee and St. Paul.....	126.00	197.00	.....
Portage Line.....	95.50	95.50	.....
Berlin, Omro and Winneconne Line.....	58.00	58.00	19,754,419
Watertown and Madison Line.....	39.00	39.00	.....
Prairie du Chien Division.....	182.00	182.00	.....
Monroe Branch.....	42.00	42.00	.....
10. Mineral Point.....	33.00	33.00	1,200,000
Belmont Branch.....	10.00	10.00	.....
11. Platteville and Calumet (progress).....	32.00	.....	320,000
12. St. Croix and Lake Superior (project).....	133.00	40.00	1,200,000
Bayfield Branch.....	9.00	9.00	.....
13. Sheboygan and Fond du Lac.....	45.50	45.50	1,997,000
14. Western Union (Ill.).....	66.00	66.00	2,500,000
15. West Wisconsin.....	153.00	130.00	4,550,000
Roads not included above, being roads projected, in progress, and recently opened.....	1000.00	150.00	5,000,000
Total.....	3,142.20	1,475.20	\$59,883,881

TERRITORY OF DACOTAIL.

1. Dacotah and Northwestern (progress).....	300.00	.....	\$300,000
2. Northern Pacific (project).....	400.00	.....	.....
Total.....	700.00	.....	\$300,000

TERRITORIES OF MONTANA AND IDAHO.

1. Northern Pacific (project).....	600.00	.....	.....
Total.....	600.00	.....	.....

[TO BE CONTINUED.]

The Cincinnati & Dayton Short Line.

In accordance with the announcement, the stockholders of two or three companies who are to aid in the construction of the Dayton & Cincinnati Short Line, met at Cleveland, on the 25th inst., and approved of the terms of the following contract.

The Lake Shore Company are to pass upon the same agreement within a short time. We learn that there is no doubt about its being approved by them.

THE SHORT LINE CONTRACT

We herewith give the complete basis of the contract between the Cleveland, Columbus, Cincinnati & Indianapolis Railway, and the Lake Shore & Michigan Southern Railroad with the Springfield & Cincinnati Railroad Company, by which the means for the building of the new Short Line road are to be provided:

Proposed basis for an agreement between the Lake Shore and Michigan Southern Railroad Company, the Cleveland, Columbus, Cincinnati & Indianapolis Railway Company and the Cincinnati & Springfield Railway Company, each being a corporation under the laws of the State of Ohio, for their material benefit.

Second. The Cincinnati & Springfield Company to build or lease a railroad from Springfield, Ohio, to Cincinnati, so as to form with the roads of the two other companies a continuous and unbroken line and gauge from Buffalo, New York, through Cleveland, Delaware and Springfield to Cincinnati, which is to be operated in the interest of all the parties hereto, and to form the recognized line for the roads of all the parties hereto from Buffalo via Cleveland to Cincinnati.

Third. For the purpose of aiding in the construction of the said road of the Cincinnati & Springfield Company between Springfield and Cincinnati, the Lake Shore & Michigan Southern Railroad Company, and the Cleveland, Columbus, Cincinnati & Indianapolis Railway Company hereby agree, each with the other, and with the said Cincinnati & Springfield Railway Company, that the said Lake Shore & Michigan Southern Railway Company and the C., C., C. & I. Railway Company will respectively indorse and guarantee the payment of the principal and interest of the bonds (to be secured by mortgage) of the said Cincinnati & Springfield Railway Company, required to construct the road of the said Cincinnati & Springfield Company, to an amount not exceeding one million of dollars each; and the entire bonded debt of said Cincinnati & Springfield Railway Company shall not at any time exceed, without the consent of all the parties hereto, the sum of two million of dollars, except as herein provided.

Fourth. The road of the said Cincinnati & Springfield Railway Company, when built and ready for use, is to be leased to the said C., C., C. & I. Railway Company perpetually—to be operated in the line of roads as aforesaid, between Buffalo and Cleveland to Cincinnati for the common benefit of the parties hereto, so as to promote the objects for which said roads were created; substantially upon the following terms: the lease to be perpetual unless consolidated with the C., C., C. & I. Railway Company, as hereinafter provided. The Cleveland, Columbus, Cincinnati & Indianapolis Railway Company and the Cincinnati & Springfield Railway Company agree to

consolidate, pursuant to law, at the end of ten (10) years upon average values as shown by the earnings of last three (3) years of both parties, the road to be run by the officers of the Cleveland, Columbus, Cincinnati & Indianapolis Railway Company, in an efficient and economical manner, under the advice and direction of a committee of three, each of the parties hereto to appoint one member of said committee annually.

Fifth. The said C., C., C. & I. Railway Company to furnish the rolling stock to operate the said Cincinnati & Springfield Railway Company's road to an amount in value not exceeding five hundred thousand dollars (\$500,000), and said C., C., C. & I. Company to receive seven per cent second mortgage bonds of the said Cincinnati & Springfield Railway Company to an equal amount at par therefor in payment, but the total capital stock, including said five hundred thousand dollars, shall not exceed two millions of dollars.

Sixth. The C., C., C. & I. Railway Company to keep an accurate account of all receipts and disbursements on account of said Cincinnati & Springfield Railway Company, and to furnish semi-annual statements thereof to said Cincinnati & Springfield Company; also to allow, for the purposes of investigation, free access to the books and accounts by the officers of the said Cincinnati & Springfield Railway Company.

Seventh. All gross earnings of the said Cincinnati & Springfield Railway Company, between Cincinnati and Springfield, shall be applied by the said C., C., C. & I. Railway Company as follows:

1. To pay all expenses pertaining to the operating, maintaining and renewals; also to pay the taxes and assessments and rentals between Springfield and Cincinnati.

2. To pay the interest on the bonds indorsed, as herein provided, of the said Cincinnati & Springfield Railway Company, as the same becomes due.

3. All the residue of said earnings and receipts accruing to and belonging to said line of road between Cincinnati and Springfield to be paid over semi-annually to said Cincinnati & Springfield Railway Company.

In the event that the gross earnings and receipts of the line between Springfield and Cincinnati shall not be sufficient in any one year to pay said rentals, taxes, expenses and interest on said indorsed bonds as aforesaid, then the deficiency shall be made up by the said C., C., C. & I. Railway Company, and charged to the said Cincinnati & Springfield Railway Company. And the said C., C., C. & I. Railway Company, out of any future earnings of said Cincinnati & Springfield Railway, and belonging to said Cincinnati & Springfield Railway Company, shall reimburse itself for said advances, with interest at seven (7) per cent. per annum.

Eighth. All the general expenses pertaining to the operating and maintaining of all the roads owned and operated by the said C., C., C. & I. Railway Company, including the road hereby leased between Springfield & Cincinnati, shall be divided between the said C., C., C. & I. Railway, and the said C. & S. Railway, in proportion to the length of each party's road over which said general expenses shall extend.

Ninth. The receipts on through business between Cleveland and Cincinnati shall be divided as follows: Sixty-four per cent. to the C., C., C. & I. Railway, and thirty-six per cent. to the Cincinnati & Springfield Railway during the continuance of this lease; and the rates

for transportation on all local freight traffic shall be divided on a basis of *pro rata* per ton per mile, after deducting therefrom at the rate of two cents per 100 pounds to either party as the cost of depot expenses and for loading and unloading the same. Local passenger traffic to be *pro rated* on actual distance hauled by each road.

Tenth. Whenever, with the consent of the said Advisory Committee, additions or improvements are made to the road of said Cincinnati & Springfield Railway Company by the said C., C., C. & I. Railway Company, the cost thereof shall be charged to said Cincinnati & Springfield Railway Company, and seven per cent interest allowed thereon, until such advances shall amount to \$50,000, when the said Cincinnati & Springfield Railway Company, shall issue and deliver to the said C., C., C. & I. Railway Company bonds bearing seven per cent. interest, to the amount of the cost of said additions and improvements.

Eleventh. In case it should become necessary, in the opinion of all of the committee of three, as aforesaid, to build a double track between Dayton and Cincinnati, the said C., C., C. & I. Railway may build the said double track, and in case said C., C., C. & I. Railway Company build said double track, they shall receive therefor the seven per cent. bonds of said Cincinnati & Springfield Railway Company, at their then market value, but not less than ninety (90) cents on the dollar.

The revenue collections from every State and Territory for the fiscal year ending June 30, 1870, were \$168,560,107, against \$143,027,988 for the fiscal year ending June 30, 1869. New York State paid the largest amount, \$36,361,550; Ohio was the next largest, \$19,568,763; Illinois, \$18,864,366; Pennsylvania is fourth on the list, \$16,748,764; Massachusetts the next, \$10,864,000. All the other States pay less than \$10,000,000 each.

Fresh Garden, Flower, Fruit, Herb, Tree & Shrub, and Evergreen Seeds, prepaid by mail, with directions for culture. Twenty-five different packets of either class for \$1.00. The six classes \$5.00.

20,000 lbs. Evergreen and Tree Seeds; Apple, Pear, Cherry, &c.; Grass Seeds; Beet, Cabbage, Carrot, Onion, Squash, Turnip, and all Vegetable and Flower Seeds, in small or large quantities; also Small Fruits, Stocks, Bulbs, Shrubs, Roses, Verbenas, &c., by mail, prepaid. New Golden Banded Japan Lily, \$0. Priced Descriptive Catalogue sent to any plain address gratis. Agents wanted. Wholesale List to Agents, Clubs and the Trade. Seeds on commission.

B. M. WATSON. Old Colony Nurseries and Seed Warehouse, Plymouth, Mass. Established in 1842.

2-2-1-9.

THE RAILROAD GAZETTE, published in Chicago, by A. N. KELLOGG, is a Weekly Illustrated Journal of 24 pages, as large as those of *Every Saturday*.

It contains a complete record of railroad news:—the progress of new roads, elections and appointments of officers, contracts let and to be let, summaries of annual reports, illustrated descriptions of railroad improvements, articles both original and selected on railroad operation and civil and mechanical engineering, and discussions of the relations of railroad companies to the community.

This journal is prepared especially for stockholders, directors, and officers of railroads, and all railroad employees. Price \$4 per annum, in advance.

THE FIRM OF WM. J. YOUNG & CO.

Mathematical Instrument Makers, consisting of Wm. J. Young and Chas. S. Heller, was dissolved shortly before the death of Wm. J. Young. The undersigned, the late partner of said firm (who was with Mr. Young continuously for Fifteen Years, will continue in the same line of business, at No. 33 North Seventh street, Cor. of Fifth.

CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29 9-70, 27

ERIE RAILWAY.

1400 MILES under One Management. 860 MILES without Change of Coaches.

BROAD GAUGE, DOUBLE TRACK ROUTE FOR—

NEW YORK, BOSTON,

Providence, Albany,
PITTSBURG, HARRISBURG

Philadelphia, Baltimore,
And Principal Points in
NEW YORK, NEW ENGLAND

—AND—
Pennsylvania.

This Railway extends from
CINCINNATI to NEW YORK, - 860 Miles.
CLEVELAND to NEW YORK, - 625 Miles.
DUNKIRK to NEW YORK, - 460 Miles.
BUFFALO to NEW YORK, - 423 Miles.
ROCHESTER to NEW YORK, - 385 Miles

AND IS FROM

22 to 27 MILES the SHORTER ROUTE.

TWO EXPRESS TRAINS DAILY

Leave CINCINNATI from DEPOT, corner Fifth and Hoadley Streets, by Columbus, O., time, which is 7 minutes faster than Cin'ti time.

7.00 A. M., CINCINNATI EXPRESS,

(Sundays excepted.) Arrive Dayton 9.10 A. M.; Urbana, 10.29 A. M.; Gallon, 12.57 P. M.; Mansfield, 1.40 P. M.; West Salem, 2.50 P. M. (Dine). (Sleeping Coaches through to New York); Akron, 4.26 P. M.; Ravenna, 5.10 P. M.; Meadville, 8.00 P. M. (Supper); Susquehanna, 7.55 A. M. (Breakfast); Turner's, 1.40 P. M. (Dine); New York, 3.00 P. M. Connects at Ravenna with Cleveland & Pittsburgh Railroad for Hudson and Cleveland; at Elmira for Williamsport and the South; at Binghamton for Cooperstown, Albany and the celebrated summer resort, Sharon Springs, and at New York with afternoon trains and steamers for Boston and New England cities.

8.45 P. M. LIGHTNING EXPRESS,

daily. Arrives Dayton, 12.03 A. M.; Urbana, 1.25 A. M.; Gallon, 3.58 A. M.; Mansfield, 4.44 A. M.; West Salem, 5.59 A. M. (Bkfst); Akron, 7.38 A. M.; Ravenna, 8.25 A. M.; Meadville, 11.20 A. M. (Dine); Hornellsville, 6.19 P. M. (Supper); New York, 7.00 A. M. Connects at Mansfield with Pittsburgh, Ft. Wayne & Chicago Railway for Pittsburgh, Harrisburg, Philadelphia, &c.; at Meadville with Franklin Branch for Oil City; at Elmira with Northern Central Railway for Harrisburg and the South, and at N. Y. with morning trains for Boston and N. England cities.

New and Improved Coaches of the style peculiar to the Broad Gauge, arranged for both Day and Night Travel, are attached to this train at Cincinnati and run through to New York, forming the **Only Line** running through 860 Miles without Change.

Boston and New England Passengers, with their Baggage, are transferred FREE OF CHARGE in New York.

The Erie Railway Company has opened a new Ferry from their Jersey City Depot to the foot of Twenty-third Street, New York, thus enabling passengers to reach by a portion of the city without the expense and annoyance of a street car or omnibus transfer.

The scenery along the entire route of the Erie Railway is of the most picturesque and beautiful character. Admirers of Nature's beauties, in a daylight journey over this Line, will find in its ever changing landscapes subjects of continual admiration and interest.

Baggage Check'd Through
And Fare always as Low as by any other Route.

ASK FOR TICKETS VIA ERIE RAILWAY,

Which can be obtained at the Company's Offices in Cincinnati, 29 West Fourth Street, 115 Vine Street, 4 Barret House, and foot of Broadway (Spencer House Block) and at all principal Ticket Offices in the South and South-west.
W. B. SHATTUCK, Gen. Southern Agent.
WM. E. BARR, Gen. Pass'r Agt.

Best Route to St. Louis and Chicago

INDIANAPOLIS,

CINCINNATI

—AND—
LAFAYETTE RAILROAD

Great Through Passenger Route from CINCINNATI to

ST. LOUIS,

CAIRO,

CHICAGO,

Memphis, New Orleans, Springfield, Quincy
Keokuk, St. Joseph, Des Moines, Omaha

Denver, Sacramento, San Francisco,

And all Rail and River Towns and Cities in the West,
North west and South-west.

The 7 35 A. M. train runs daily.

ON AND AFTER SUNDAY, DEC. 5TH, 1869, TRAINS
WILL LEAVE PLUM STREET DEPOT, AS FOLLOWS:

	Leave.	Arrive.
Indianapolis and Lafayette Mail....	7.30 am	12.40 am
St. Louis and Springfield Express....	9.40 pm	7.35 am
St. Louis and Springfield Express....	10.20 pm	2.42 pm
Lawrenceburg Accommodation.....	10.10 am	2.35 pm
Lawrenceburg Accommodation.....	4.20 pm	8.25 am

*The 10.20 pm. train will leave Sundays, but not on Saturdays.

VIA WHITEWATER VALLEY DIVISION.

Chicago Mail.....	7.00 am	10.15 am
Chicago Express.....	6.50 pm	9.30 pm
Harrison Accommodation.....	5.30 pm	7.10 am

Through Tickets can be obtained at the Burnet House Office, corner of Third and Vine; River Office, corner of Walnut Street and River; and at Depot, corner of Plum and Pearl Streets. The splendid Passenger Depot of the I. & O. Railroad is about a mile nearer the business center of the city than the Depot of any other railroad, and within a few squares of the Postoffice and principal hotels and Steamboat landings.

J. F. RICHARDSON, Superintendent.
E. D. LORD, General Ticket Agent.

Cincinnati, Hamilton & Dayton Railroad.

Trains run to and from Cincinnati as follows:

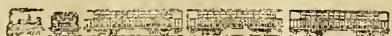
	DEPART.	ARRIVE.
Eastern Express (Erie Railway).	7:00 A. M.	6:30 P. M.
do do do	9:45 P. M.	7:00 A. M.
Toledo, Detroit & Canada.....	7:15 A. M.	10:25 P. M.
do do do	6:30 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago.....	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo.....	7:15 A. M.	5:40 P. M.
Springfield Accommodation.....	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo.....	6:30 P. M.	10:20 A. M.
Mancie & Indianapolis.....	7:15 A. M.	10:25 P. M.
do do do	5:00 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond.....	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	10:20 A. M.
Hamilton Accommodation.....	9:30 A. M.	8:45 A. M.
do do do	6:50 A. M.	

Trains run SEVEN MINUTES FASTER than Cincinnati time.

For all information and through tickets, please apply at the old office, south-east corner of Broadway and Front; Burnet House Office, corner Vine and Baker Streets, and at the respective depots. East Front and West Sixth streets.

D. McLAREN, Gen'l Superintendent.
SAM'L STEPHENSON, Gen'l Ticket Ag't.
Omnibuses call for passengers

The Old And Reliable Route.



Through to Pittsburg without Change.

The PITTSBURG, FORT WAYNE & CHICAGO RAILROAD, in connection with the Cincinnati, Hamilton & Dayton, and Little Miami Railroads, still continue to transport produce and merchandise between Cincinnati and Pittsburg, Philadelphia, Baltimore, New York or Boston, and all Eastern points with the greatest promptitude and dispatch.

For Rates, Bills of Lading, or any information desired, shippers will please apply to

H. W. BROWN & CO.,
No. 27 West Third Street, Cincinnati
W. P. SHINN, General Freight Agent,
Pittsburgh, Pa.

**LOUISVILLE & CINCINNATI
SHORT-LINE RAILROAD.**

On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Eliston, Sparta, Liberty, Worthville, Campbellsburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.65 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sunday). Stops regularly at Walton, Eliston, Glencoe, Sparta, Liberty, Worthville, Campbellsburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Eliston, Glencoe, Sparta, Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

No. 6 connects at Lagrange with the Lexington Trains, arriving at Frankfort at 6.14 P. M., Lexington 7.45 P. M., QUICK TIME.

The Best Route to the South More Daily Trains and Quicker Time than any Line from Cincinnati.

HENRY SIFFEE, Gen. Ticket Agt

CENTRAL R. R. OF NEW-JERSEY.

Passenger and Freight Depot in New York, foot of Liberty st., connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburg and the West, without change of cars.

ALLENTOWN LINE TO THE WEST.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, etc., with but one change of cars. Silver Palace cars through from New York to Chicago.

FALL ARRANGEMENT.

Commencing August 30, 1869. Leave New York as follows:

6:55 a. m.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahoney City, Tuckahoe &c.

7:15 a. m.—For Somerville.

8:30 a. m.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, &c.
12 m.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litz, Pottsville, Scranton, Harrisburg, &c.

3:30 p. m.—For Easton, Allentown, Mauch Chunk and Belvidere.

4:30 p. m.—For Somerville.

5:25 p. m.—For Somerville and Flemington.

6 p. m.—For Easton and intermediate stations.

7 p. m.—For Somerville.

7:20 p. m.—EMIGRANT—Stopping only at the principal stations.

9:00 p. m.—For Plainfield.

11:50 p. m.—For Plainfield, on Wednesday and Saturdays only.

FOR THE WEST.

9 a. m.—WESTERN EXPRESS, daily, (except Sundays,) for Easton, Allentown, Harrisburg, and the West without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Easton the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg, Mauch Chunk, Wilkesbarre, &c.

5 p. m.—CINCINNATI EXPRESS, daily (except Sunday days,) for Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburg, Chicago, and Cincinnati. Sleeping-Cars to Harrisburg and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all stations to Scranton. This train will be run to Easton on Saturdays as a local train, stopping at principal stations.

8 p. m.—WESTERN EXPRESS TRAIN, daily, for Easton, Allentown, Reading, Harrisburg, Pittsburg, and the West—connects at Harrisburg with train for Williamsport, Erie &c.

Sleeping cars through from Jersey City to Pittsburg every evening.

Trains leave for Elizabeth at 5:45, 6:30, 6:55, 7:15, 8:15, 8:30, 9, 9:20, 10:30, 11:40 a. m.—12 m., 1:00, 2:00, 3:00, 3:30, 4:45, 4:50, 4:55, 5:10, 5:25, 5:45, 6:00, 6:25, 7:00, 7:20, 7:40, 8, 9, 9:00, 9:40, 10:45, 11:50 p. m.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty st., N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich st., and at the principal hotels.

R. E. RICKER, Superintendent
H. W. BROWN, Gen. Pass. Agt.

The Railroad Record.

E. D. MANSFIELD, - - - - - } Editors.
T. WRIGHTSON, - - - - -
A. J. HODDER, - - - - -

CINCINNATI, THURSDAY, FEBRUARY 9, 1871.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

SUBSCRIPTIONS—\$3 per annum in advance.

ADVERTISEMENTS.

A square is the space occupied by ten lines of Nonpareil.

One square, single insertion.....	\$ 2 00
" " per month.....	5 00
" " six months.....	15 00
" " per annum.....	25 00
" column, single insertion.....	7 00
" " per month.....	14 00
" " six months.....	55 00
" " per annum.....	110 00
" page, single insertion.....	25 00
" " per month.....	40 00
" " six months.....	135 00
" " per annum.....	210 00

Cards not exceeding four lines, \$7 00 per annum.

WRIGHTSON & CO., Prop'r's.

Shall the Tunnel be made?

There are a great many things—enterprises (as Shakspeare says)—of great pith and moment, which lie dormant through long periods of time, partly for want of sagacity, but oftener for want of quick apprehension (on the part of those most interested) to realize that they would be profitable to the undertakers. To put *this* and *that* together is a talent which is often wanting to the human mind. Somewhere about 1650 there was a steam engine working in Newcastle coal mines; and at or near the same time there was a *railroad*, that is, rails laid on which horses drew cars. All that was wanting to have had our railroads 200 years ago was to put that steam engine and the rails together; that is, to put a locomotive on the rails. But it took 200 years to put *this* and *that* together. We may take a much nearer illustration. The Little Miami Railroad Company was made about 1845. The Ohio & Mississippi road about fifteen years after that. The Little Miami came in on the east side of the town; and the O & M. on the west side. It was twenty years after the L. M. was made before the City Council of Cincinnati would allow the Little Miami to lay rails through the city even for horse cars. It requires a quick sight and sagacious talent to know how to put *this* and *that* together. Hence we are not much surprised that the unthinking multitude have not seen the pra-

ticability and merits of the tunnel; but we are greatly surprised that some of the railroad companies have not seen it. Let us look a little at the matter. *First* Let us look at the geographical position of the city. The main body of Cincinnati lies between two creeks—Deer creek on the east side, and Mill creek on the west side. Deer creek affords no entrance for a railroad, but the approach to it is on the banks of the Ohio, on a very narrow margin under high hills. On that side there can not be apparently more than one railroad track without great expense. As a result, a new and independent railroad (such as the *Chesapeake & Ohio*) will in all probability be *compelled* to come through the Tunnel. At all events, we may lay it down as a fact (without putting down line or rule on the route), that it will be *cheaper* to finish the Tunnel and come through it on the upper plain, than it will be to buy the right of way and make a new road on the side hill from Columbia to the lower plain of Cincinnati. This is the state of facts on the east side of the town. What is it on the west? On the west side, Mill creek affords a valley entrance on the north side, but on the west the case is exactly the same with the entrance by Deer creek. There is no entrance there except on the narrow rim of the Ohio, and no new entrance can be made except at a most enormous outlay. Mill creek valley coming from the north is the only natural entrance for a railroad into Cincinnati left. But does that remain? Really not. It was first occupied by the Cin, Ham. & Dayton line. For that road the entrance was ample enough, but, even then, that company did not understand the situation. It was soon compelled to have new depot grounds. The short-sighted people thought the company, in buying four times the original amount of land, was making an unnecessary and improvident expenditure; but it has proved too small, and the company will be embarrassed for room. What has happened? The company has been compelled to receive as branches the Junction, the Eaton, the Atlantic & Great Western, and now the Marietta or Baltimore road. But what has happened in the valley to these roads? The Baltimore road, for example, has been compelled to make a new route or track into the city; and at what expense? We undertake to say, that the *cost* of the Baltimore road for the eight miles into the city by Cumminsville is *greater than to have made the Tunnel*, and it never can be so good or convenient an entrance into the city. The engineers of the Marietta road (as stated by S. H. Goodin, Esq., in his pamphlet on the Tunnel), reported that the route from Loveland by Sycamore creek was the shortest, but when they actually made the road on that route they made it *two miles longer than the Little Miami Railroad from the same point!* This, with the subsequent new track from Spring Grove in, was a most extraordinary

performance. The extra cost arose from *going round* the proper entrance (the *Tunnel*) and paying an enormous sum for the entrance by Cumminsville. But it is not of that we are talking. We may as well say, that several years ago, in the lifetime of John Kilgour, then the principal man in the Miami company, in a conversation with him on the subject of the Tunnel. He said, while declining to do anything, that the "Little Miami road would be the first to go through the Tunnel." He saw clearly that the Tunnel *would be made* at some time, but did not wish his company to make it, but *stand ready to take advantage of it*. This is exactly what has prevented the making of the Tunnel. The railroad men of all the companies saw clearly that the Tunnel ought to be and probably would be made; but they were not then very rich in money, and did not want to advance the capital for their companies; and they would *wait and take advantage* of the Tunnel when made by others. This is the great merit of the Tunnel scheme, that when made the railroads on the north and east will be *compelled, in spite of themselves, to adopt it*.

But let us look a little more at the geographical position of this city. We have examined the entrances to the city, let us look at the plateau of the city. Cincinnati, below the hills, is built on two plains, the one bordering the river being about 50 feet lower than the one running along the base of the hills. If a railroad comes in from the Tunnel this 50 feet must be overcome to make a junction with the other roads. But in that there is no difficulty. It may be done in two ways, either by an actual grade down (for a mile) to the east and west roads, or, better, by making a tunnel under the central part of the city, and which would really be the least expensive. There seem to be among people very erroneous ideas of a tunnel. A tunnel in common earth is a very easy thing, and not so expensive as some surface work. We may refer here to three examples of city work in this regard which will show how easy it is. The Pan handle road is tunneled under a large part of Pittsburg, more than we need do here. The Erie road tunneled Bergen Hill at great expense to reach the Hudson at Hoboken. The Harlem road is cut through solid rock in the upper part of New York, and we have no doubt cost a great deal more than would a tunnel under Sixth street, Cincinnati. In fine, without going into details, we believe the Tunnel not only ought to be made, but that it is the greatest speculation of the day, in the hands of practical men, with sufficient capital. We are told, and believe it is so, that to finish the entire Tunnel would not cost more than half a million of dollars. If so, more can be got out of that half million than out of any other half million spent in Cincinnati.

A Great Mistake.

The *Commoner* suggests that the Deer creek tunnel should be completed so as to allow the use of the Cincinnati & Newport bridge, and permit approach to it by easy grades after the bridge has been raised so as to permit the coal boats to flow freely under the draw. If we had a hole through the hills into Deer creek it would be a great help, but a difficulty with the tunnel is it is caved in, and the outlay required to finish it now would be as great as if there had never been any digging done in that quarter.—*Commercial*.

Quite a blunder. A recent examination shows that the caving in of the Tunnel is a mere trifle at the north end, where it was left unfinished, and that the southern part, upon which much the largest amount of work is done, stands as firmly as the day it was built. The three shafts are full of water, which warrants us in supposing that the curbing is sound and shafts substantial. If there is no caving from this source we are probably quite safe in saying that the tunnel work from the base of these shafts remains very nearly as it was when the workmen last left it.

We are confirmed in this opinion by a recent trial with a line and lead of the depth of the water in two of these shafts, and found the bottom was nearly or quite reached.

The length of the Tunnel is 9,990 feet. Of this there has been 3,058 feet excavated, as follows:

From south end to shaft No 1,.....	785 feet.
" shaft No. 1 to " " 2,.....	579 "
" " " 2 to " " 3,.....	574 "
" north end,.....	1,119 "
Total.....	3,058 "

This does not include the work upon the approaches.

The total expenditure upon the Tunnel, as nearly as we can estimate it, is \$350,000, which embraces a sum of about \$100,000 expended for surveying, right of way, and sinking the three shafts spoken of.

A short time since, the writer of this article secured an examination of this work by a person who was originally engaged in its construction, and whose experience in such matters entitles his judgment thereon to the highest respect, and he estimated that \$30,000 was quite ample to pump the water out of the shafts, remove the silt that may have accumulated in them, and make all necessary repairs, clean out the approaches and repair the break in the north end. In short, to place it in as good condition as when it was abandoned in the year 1857.

This being true, the work would be worth \$320,000, divided as follows:

Surveying, right of way and shaft	
sinking	\$100,000
Tunneling.....	220,000
Total	\$320,000

Aside from the surveys, &c., when the work upon the Tunnel was suspended it was con-

sidered that about one-third of the whole was completed, at a cost of \$250,000; a greater sum, it was estimated, than would be necessary to finish either of the remaining two-thirds.

But suppose that instead of \$30,000 it required \$50,000, or even \$100,000, to place the work in the condition the laborers last left it—what of it? Such a sum is a mere trifle in comparison with the value of the whole. It would still be worth, by reason of actual outlay, \$250,000; and by reason of the saving of time in its completion, and the possession of much the best locality that can be found for such an entry through Walnut Hills, a further sum of twice that amount.

This is the status of the Tunnel. The caving in is nothing, and because there has "been digging done in that quarter," an outlay of at least \$250,000 will be saved to the parties who undertake to complete it. And the *Commoner* is right when it suggests "that it should be completed so as to allow the use of the bridge, and permit approach to it by easy grades after the bridge has been raised so as to permit the coal boats to flow freely under the draw" (we say without any draw). And the *Commercial* is right when it says: "If we had a hole through the hills into Deer creek it would be a great help." Let us make it, and settle the whole question.

The Trials of Enterprising Men.

Enterprising men have trouble enough, as a general thing, without being bothered by the interferences of those who ought to help them, or by a lot of contemptible drones who fasten upon them to be dragged along without contributing the least aid in return. We know of men full of enterprise and energy and resources, who are always doing something for the public good, by whose efforts their places of residence become well known, and men receive employment at good wages, improvements of all sorts are suggested and carried out, buildings are erected, and the whole community stimulated into activity by their go-ahead spirit. Wherever such men are, there is life, progress, increasing prosperity, and a general character for advancement that is invaluable, and that is not to be had by any other means.

One would naturally suppose that such men in a community, if they added to these other merits those of integrity, large social qualities, sobriety, and a love of scientific and literary culture, would certainly be very popular, respected by all who knew them, shining lights in their communities, whom every one would be ready to cheer and help in their great endeavors.

We are sorry to record that our experience thus far in life is exactly the contrary. Such men are the subjects of the meanest envy; they are plotted against by those who are often their pretended friends, and in their

confidence; their best efforts are obstructed by those whose interests one would suppose would prompt them to contribute to their support; their motives are impugned, their noblest actions misunderstood, and thus their usefulness impaired, if not absolutely destroyed.

What wretched folly is such conduct! How fatally it recoils! To embarrass an energetic and enterprising man in his struggles for the public weal—to vilify his motives upon no better grounds than an ignorant and malicious suspicion, is robbery, baser and meaner than "filching from another his good name, by which the loser is made miserably poor indeed, and the thief in no wise enriched, because in such cases both robber and robbed are made incalculably poorer in much that goes to make the pleasures of life.

Railroad Stocks Watered.

The money article of the *Ledger* on Tuesday begins with the following item:

In No. 2 of *Hatch's Circular*, showing up the frauds in railroad management, it is stated that the Cleveland, Painesville & Ashtabula Railroad, in six years, from 1862 to 1867, inclusive, made 232½ per cent. dividends, being an annual rate of a fraction less than 50 per cent. Of this amount 120 was in stock, 83½ in bonds, and 79 in cash! These dividends commenced on a square capital, in 1861, of \$3,000,000. The happy possessor, that year, of \$10,000 of stock held, at the end of six years, \$32,500, in stocks and bonds, for the original \$10,000. In the meantime he received \$7,900 in cash—in other words, he received in dividends, in six years, \$30,400 on an investment of \$10,000. Brilliant as was this achievement, it was fairly eclipsed by the managers of the Buffalo & Erie Railroad, which now forms the eastern portion of the Lake Shore line. In 1866 the share capital of the road, 88 miles long, was \$2,200,000. Its funded debt was \$1,018,000—the total capital amount being \$3,218,000. In 1867 its share capital was watered to the tune of \$2,000,000. In 1869 it was increased to \$6,000,000, and its funded debt to \$4,000,000, making a total of \$10,000,000, the waterings amounting to \$6,778,200, in addition to an annual cash dividend of 10 per cent.

The waterings in the line from Buffalo to Cleveland, a distance of 203 miles, equaled \$13,379,000, or \$65,906 per mile. The dividends upon this sum, at 8 per cent., amount to \$1,070,320, or at the rate of \$5,272 per mile annually.

The waterings in the Cleveland & Toledo Railroad amounted to \$1,250,000. In addition to the above specific waterings, there was a general one, when the consolidation was entered into, to the extent of \$5,440,670.

The watering in the New York Central and Hudson River Railroad equaled \$57,578,990.

The capital account of the New York Central and Hudson River and the Lake Shore Railroads, equals \$163,017,203. The amount of their waterings equals \$77,644,770. Their actual cost, consequently, has been \$85,372,433. The waterings, \$79,000 per mile, equal to the cost of conducting a first-class, double-track railroad, laid with steel rails, direct from New York to Chicago, costing \$100,000 to the mile, with an equipment sufficient to earn \$40,000,000 annually. These facts and

figures are frightful, and may well excite the alarm, not only of stock and bondholders, but of the whole community, financially, commercially and politically. And yet what is the remedy?

Sure enough, "what is the remedy?" We think it will puzzle our wisest men to find one. No legislative interference yet suggested seems to be the thing, unless Mr. Adams' government possession of the roads will do it. But a very serious question arises whether by such an arrangement we may not run into other troubles quite as formidable and difficult of solution as this one. Just simply jump out of the frying pan into the fire.

If a law could be enacted and made operative by Congress for all roads passing through two or more States, or by the States for such roads as are within their respective boundaries, compelling a division in cash among the stockholders of any excess of receipts above the amount necessary to pay interest upon their debts, provide for sinking fund, and a stipulated sum as dividends upon the stock, the evil might be prevented, and the surplusage now represented by watered stock would not be saddled upon the roads forever, and made a means of control, but pass into the avenues of circulation. The stockholders would be benefited then just in proportion to the prosperity of the roads, and not as they now are, holding the evidence of their success at one period, to load them down at a less fortunate one.

This might be a check upon excessive tariff charges, as the public would be aware of the extent of the earnings of the road, and if they were very large, competing lines would be made, or threatened to be, which would have a very wholesome effect.

There should be no unnatural increase of the stock, and no appropriation of an excess of funds, other than would be done by an individual in his business.

Under such an arrangement, it seems to us that the stock would always be worth a price above par corresponding to its products over current rates of interest, and never be subject to such possible depreciations as if watered to the amount that this excess would be a dividend upon.

There is a mutability in the affairs of railway corporations, as with those of men. They are not always great, and strong, and rich. This arrangement would leave the stock interest so elastic as to be as safe as possible under any circumstances, and not strained to the breaking point when the declining time should come.

— The official statement of the Illinois Central Railroad for December, 1870, is not yet published. From Jno. B. Calhoun, Esq., however, we learn that the transactions in the land department for that month were sales of 6,108 85-100 acres for \$51,043.59; cash collections, \$213,540.12.

The Protector.

Our friend, Mr. Sidney Ashmore, sends us the first number of his new paper, *The Protector*, a journal devoted to Insurance interests, and published at 39 Park Row, New York, at one dollar per year.

It is neatly printed and full of interesting matter upon its specialty.

We clip the following item from its columns as one of value to our readers:

Twenty-two of our leading capitalists are insured in different New York offices for various sums from \$100,000 to \$300,000, showing an aggregate amount of \$3,930,000, or an average of over \$187,000. Cyrus W. Field, the distinguished pioneer in Atlantic telegraphy, has his life insured for nearly a quarter of a million. Daniel Drew has his life insured for several hundred thousand dollars. Horace Greeley has an insurance of about \$75,000 on his life. Mr. William W. Cornell, of New York, recently deceased, had an insurance on his life amounting to \$125,000. Mr. James Brown, the millionaire banker, head of the well known American and English banking house of Brown Bros., is insured on his life for \$100,000.

The Rapid Progress of Cincinnati's Shortest Line to the Atlantic.

CHESAPEAKE AND OHIO RAILROAD.

"The work goes bravely on!" Orders are received here to let the whole line of the Chesapeake & Ohio Railroad, not already under contract, on the 1st of April. And it is further ordered by the Board that the road shall be in operation from the terminus, at the junction of the Big Sandy river with the Ohio, to the falls of the Kanawha, in July next. Major Whitcombe, the chief engineer, is the man to put through what it is possible to do. The object of President Huntington is to have the whole road in operation by the summer of 1872, and every effort is to be made with that view.

From the more difficult points of construction along the line the news is encouraging. The Big Bend tunnel is the heaviest work on the road. Recently, in sinking a shaft of some hundred and twenty or thirty feet, a stream of water was encountered which was controlled by an engine and the buckets. But as the workmen were near the bottom of the pump—a well some thirty feet below the bed of the tunnel to gather the water for pumping it out—the drill struck a body of water, which rose so rapidly that the workmen could not with their means keep it down, and barely succeeded in making good their escape when the water had reached their arms. The contractors had immediately to order a powerful engine capable of keeping down this large influx of water. But the engine had not been put in place when the flow of water ceased. It was an unaccountable freak of the internal economy of the earth, yet one highly grateful to the contractors, who are thus relieved of a great expense and trouble, while the work is much facilitated. Where this water appeared there is a deposit of lime, yet there was no limestone elsewhere exposed by the progress of tunneling, the mountain consisting of slate as far as the work progressed.

At the Lewis Tunnel, or Jerry's Run, the contractors have put the steam drill in opera-

tion, and we may expect that the work will be pushed ahead very rapidly.

The fill at Jerry's Run is going ahead finely, and will be completed much sooner than was anticipated. The energy and ingenuity of Mr. C. R. Mason, contractor, have enabled him to throw down into the ravine immense bodies of earth from the mountain above, and the embankment rises rapidly. The earth is gathering about the trestle work of the present temporary track, so that before the summer travel begins the track will rest upon the earth. Of the work near Millborough, where there is another great fill, it may be said that it is going on fully up to expectations.

It will not be many months before temporary tracks upon this great railroad will be entirely dispensed with. We may safely count upon this by the time the road is finished, in July, 1872.

Really, the near approach to completion of our railroad communication with Ohio, is quite exciting. It must be anticipated by our people with more or less of that nervousness with which a grand consummation felicitous to everybody is naturally regarded. After so long waiting and wishing for it, it is about to burst upon us with a suddenness for which we are not fully prepared. The people have not been inclined to believe the statements of the last year as to the period of this consummation. They have been made, by long disappointment, incredulous. But the evidences are accumulating, unbelief is crumbling away, and soon we shall see the former unbelievers filled with joy, swelling the throng of exultant people.

The road completed eastward to the falls of Kanawha, will leave a gap of about sixty miles to the White Sulphur to be traversed in stages until the summer of 1872, when the whole road will be opened—*Richmond Dispatch*.

THE PRINTING OF STAMPS.—The Committee, consisting of Senator Edmunds, chairman, the First Comptroller of the Treasury, and Mr. W. P. Sherman, to whom the Secretary of the Treasury and the Commissioner of Internal Revenue referred the bills for printing the revenue stamps, have reported to the Secretary in favor of having one printing done by outside parties, and the second printing and finishing to be done at the Treasury Note Printing Bureau, under Mr. George B. McCartee. This plan, the committee think, will afford ample check against fraudulent and over issue, as no one house will possess the means of completing any one of them. The committee recommended that the distinctive note paper with the located and distributive fibre be used for printing all the stamps. They did not advise that the adhesive stamps be made outside of the Treasury building on account of the atmosphere therein operating against a successful application of the adhesive property to the stamps; but the Commissioner suggested that it would be the most practical plan for the present to have the work done elsewhere, as the want of room in the Treasury building precludes the work of adhesive stamps being done there. It is not known whether the Secretary will determine to adopt the entire report of the committee or a part of it, but it is believed that the recommendation to have all the stamps finished in the Treasury will be complied with, which will not necessitate an increase of the force in the Note Printing Bureau, but will simply call into service the one hundred and twenty odd female employees furloughed last summer, and now awaiting re-employment.—*Washington Chronicle*.

The Mont Cenis Tunnel.

HISTORY OF THE PROJECT FROM THE BEGINNING.

The "eternal" barrier between France and Italy has at last been overcome, and at this moment the workmen who for 13 years have been working towards each other in the bowels of the Alps have doubtless met, and with such familiarity as their diverse languages will permit, congratulate each other on the completion of their more than herculean labor.

The Alps have been crossed even with great armies since the days of Hannibal, but the undertaking has been one of no little toil and some danger. In 1805 the first Napoleon constructed a road through the pass of Mont Cenis, which was at a moderate elevation of some 5,400 feet above the level of the adjacent country. This was thirty miles long and eighteen feet wide, and was built at a cost of 7,000,000 francs. It served for many years as the only highway between France and Italy; but within the last five years a railway has been built over the ridge, upon which a steam engine of peculiar construction slowly drags a single car. The idea of piercing the mountain and gliding from one country to the other in a few minutes' time, was first broached about twenty years ago, and, as a matter of course, was ridiculed by that large class of persons whose conceptions of what can be done is formed entirely in accordance with what they know has been done. All manner of difficulties and obstacles were suggested, and declared to be insuperable; but the projectors believed they could be overcome. The governments of France and Italy were applied to to lend their assistance for the accomplishment of this stupendous undertaking. The feasibility of the work was argued at length before the legislative bodies of both these nations, and the result was finally a contract for the work.

The route chosen was of course the shortest possible line through the vast mountain range, as the altitude of the peaks or general ridge made no difference with the work. The old plan of sinking shafts from the top at intervals, and working from one to another, was pronounced impracticable from the start, and a continuous boring from either end was determined upon as the only method of proceeding, the workmen being supplied with light and air as they retreated from the cheerful light of day and the wholesome atmosphere of the outer world. The place was found about fifteen miles from the old Mont Cenis road, where a tunnel of 12,220 meters, or a little less than eight miles in length, would pierce the mountain range and connect the town of Fourneaux, near Modane, in the valley of the Arc, in Savoy, with Bardoneche, in the valley of the Doraripera, in Italy, by a railroad over which a train of cars of any desired length could run in a very few minutes. Between these two termini the tunnel passes under three mountains of considerable height, even for Alpine peaks, known as the Col Frejus, the Grand Vallon and the Col de la Kove, ranged in the order in which they are here named as we pass from France to Italy. The central summit is over 11,000 feet above the sea level, and by the old method of sinking shafts it would have required more time and labor to bore one of these, than has been taken for the entire work.

The work was begun in 1857. At first the ordinary hand drill was used to pierce the rock, and the solid masses were blasted out with

powder. This method of operating which was kept up on the Italian side until 1861, and on the French side until 1863, would have required upward of fifty years for the completion of the work. Accordingly it behooved the projectors to bethink them of some more expeditious method of proceeding. The use of steam was out of the question, and the attention of the Italian engineers was therefore turned to a device for using compressed air as the motive power. This matter presented no very great difficulty in its general principles, but a great deal of experimenting was necessary before it could be put into successful practice.

A machine was finally invented and put into operation which could stand outside by one of the streams that came down from the mountains, and with its aid force the air through long tubes to the drilling apparatus. This latter is a machine which works in a galley nine feet square, and carries a large number of perforators, each of which bores a separate hole in the rock. By the compressing machine the air is forced into a reservoir, and thence it passes through flexible pipes to the cylinders containing the drills of the perforating machines. By the opening of a valve each drill is forced against the face of the rock with a force of about 200 pounds, turned slightly, and withdrawn. Two hundred of these blows are given every minute with each drill, and when holes of the required depth have been bored, the air is turned off, and the machine withdrawn a short distance. The holes are bored in such a way as to converge slightly toward each other, so that every blast will bring down a considerable mass of rock. At first powder was used in blasting, but there were many obvious objections to this. As soon as any considerable progress had been made, and subsequently gun cotton was tried. This was afterwards displaced by the use of nitro-glycerine. The rate of progress has been varied, of course, with the hardness of the rock, and has been from one and a half to three feet per day. Among the incidental appliances employed by the workmen, are a gas house, miniature water works, and machinery for supplying their own lungs with air, as well as those of the perforating machinery. Thus the three essentials of comfortable life—light, air and water—are received from the outer world by machinery.

The tunnel is in the form of a segment of a cylinder, the bottom being level for the road bed of the proposed railway. The height of the arch is 24 feet 7 inches, the width of the tunnel at the base, 25 feet 3½ inches, and the width in the broadest part 26 feet 2½ inches. As fast as the rock is blasted out it is removed, and a party of masons follow close behind the busy machinery to complete the masonry. The work has gone on in this way day and night for more than a dozen years, and at last the two gangs of workmen have met—so we are told by the telegraph—far beneath the summit of the Grand Vallon. The progress has been a little more rapid on the French than on the Italian side, the average being 56.80 metres on the former to 53.20 on the latter.

The completion of the tunnel itself has been achieved three or four months sooner than was anticipated a year ago, April, 1871, being the earliest date assigned for that consummation. It will require about six months more to complete the railroad which is to thread the tunnel, and make a journey from France to Italy as easy as that across the German border.—*N. Y. Times.*

The New Erie Sleeping Coaches.

The conveniences of modern travel—how are they multiplying? Cars heated by hot water, lighted with gas, cushions of velvet, walls covered with oil paintings, carpets of the finest Brussels, curtains of tapestry, beds of curled hair, ceilings in fresco, windows of French plate glass, mirrors of the finest quality, seats of carved walnut, walls of splendidly polished hard woods, cornices fit for the finest library, hooks and handles and bars of the finest silver. Such are the appointments of the new sleeping coaches built for the Erie Railway, and which are now running between Cincinnati and New York. They call them Drawing Room Palace Sleeping Coaches, and they are worthy of the name. They have the comfort of a bed chamber, the beauties of a parlor, and the capacity of a drawing room. The seats are really luxurious, covered with a species of velvet called French moquette, of the most beautiful colors, and with meditation patterns in the center of each seat. The wood work is all black walnut, with panels of the same material made from the most beautiful veneers cut from the knots of this wood. The work is oiled and polished so that it is as fine as the best furniture. Five fine globes from above surrounded by rich appointments furnish light by night. In the main room, after the beds are all put away and hidden from view, the traveler looks upon the walls decorated with twenty oil paintings. In this coach is a parlor or family room, six by nine feet, capable of accommodating six persons. There is nothing apparently that could be added to this to make it more attractive and comfortable. There is still another stateroom in the rear that will accommodate four persons. A wash room at either end furnishes every possible convenience in this line. The bed clothing is of the best, and the amplest arrangements have been made for clean linen.

The coach is warmed by Baker's patent hot water furnace, which is so constructed that, in the event of an accident, the fire will not be communicated to the surrounding wood. Fifty persons can be accommodated in each car.

The Erie and Atlantic Sleeping Coach Company have planted thirty-eight thousand dollars in this marvel of the car kind. Whether it will blossom into handsome returns would seem to admit of no doubt, when it is remembered that the charges on these are the same that are made in the common coaches.—*Indianapolis Journal, Dec. 7th.*

—The sales of the Union Pacific land department for the month of December foot up \$50,000. A large proportion of this land has been sold to actual settlers, who will commence agricultural operations in the spring.

—The certificate of incorporation of the Dayton, Stillwater Valley & Saginaw Railroad Company, capital \$1,000,000, was filed in the office of the Secretary of State, Feb. 1. The road will run through Montgomery, Miami, Darke, Mercer, Van Wert, Paulding and Williams counties.

—The certificate of the Wheeling & Toledo Railroad Company, with \$1,000,000 capital, was filed Feb. 1. The termini of the proposed road is Bridgeport, Belmont county, and Toledo, passing through the counties of Belmont, Harrison, Tuscarawas, Stark, Holmes, Wayne, Ashland, Richland, Crawford, Huron, Seneca, Sandusky, Ottawa, Wood and Lucas.

Railroads of the United States.

A Tabular Statement showing the Length and Cost of each Work at the close of the financial year ending nearest to January 1, 1871.

(Continued from page 405.)

(Not including City Passenger Railroads.)

STATE OF MINNESOTA.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Hastings and Dakota.....	200.00	30.00	\$1,000,000
2. Lake Pepin and Dakota (project).....	200.00		
3. Lake Superior and Mississippi.....	154.00	154.00	6,000,000
White Beaver to Stillwater.....	12.00	12.00	
4. Milwaukee and St. Paul (Iowa).....	131.00	131.00	5,000,000
Austin to Iowa Line.....	13.00	13.00	
5. Minnesota and North Western (project).....	150.00		
6. Northern Pacific (progress).....	224.00		220,000
7. St. Paul and Chicago (C. & N. W.).....	101.00	55.00	2,000,000
8. St. Paul & Pacific (St. P. to Watab).....	80.00	80.00	
Western Division (St. A. to Breakenridge).....	206.00	143.00	8,000,000
Pembina Extension (project).....	300.00		
9. St. Paul and Sioux City (Minn. Valley).....	300.00	100.00	3,000,000
10. Southern Minnesota.....	250.00	102.00	4,500,000
11. Superior and State Line (project).....	100.00		
12. Winona and St. Peter (C. & N. W.).....	152.00	152.00	5,000,000
Total.....	2,634.00	672.00	\$34,720,000

STATE OF MISSOURI.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Cairo and Fulton (St. L. & Iron Mt.).....	76.79	37.00	\$897,100
2. Charleston and Randolph (progress).....	40.00		400,000
3. Cape Girardeau and State Line (project).....	87.00		
4. Chillicothe and Brunswick (progress).....	36.50		365,000
5. Chillicothe, Leon and Des Moines (progress).....	62.00		620,000
6. Hannibal and Central Missouri (progress).....	70.00		700,000
7. Hannibal and St. Joseph.....	267.00	27.00	20,000,000
Quincy Branch and Bridge.....	15.00	15.00	
Cameron and Kansas City Branch.....	53.00	53.00	
8. Iron Mountain and Helena (Ark.) project.....			
9. La Crosse and Fort Scott (progress).....	127.00		127,000
Lebanon to St. Genevieve.....	150.00		
10. Lexington and St. Louis (Lex. to Sedalia).....	54.00	51.00	1,700,000
11. Louisiana and Missouri River (progress).....	110.00		210,000
Mexico to Jefferson City.....	47.00		
12. Missouri and Mississippi (progress).....	131.00		262,000
13. Missouri Valley.....	13.00	130.00	4,500,000
14. North Missouri.....	233.25	23.25	20,500,000
W ste n Extension.....	125.75	125.75	
Columbia Branch.....	22.00	22.00	
15. Osage Valley and Southern Kansas.....	150.00		800,000
16. Pacific of Missouri.....	230.00	230.00	15,014,200
17. Quincy, Missouri and Pacific (progress).....	2.00		400,000
18. St. Joseph and Burlington (Iowa).....			
19. St. Joseph and Council Bluffs (Iowa).....	80.00	80.00	2,000,000
20. St. Louis, Council Bluffs and Omaha (project).....			
21. St. Louis, Chillicothe and Omaha (project).....			
22. St. Louis and Iron Mountain.....	195.00	195.00	12,000,000
Pilot Knob Branch.....	11.00	11.00	
Potosi Branch.....	4.00	4.00	
23. St. Louis and Keokuk (project).....	130.00		130,000
24. St. Louis, Lawrence or Denver (project).....	55.00		55,000
25. St. Louis, Macon and Omaha (project).....	90.00		90,000
26. St. Louis and St. Joseph.....	72.25	72.25	3,000,000
27. St. Louis South Western (project).....			
28. South Pacific (Atl. & Pac.).....	290.50	190.50	10,000,000
29. Tebo and Neosho (Ark.).....	102.38	102.38	5,000,000
Roads not included in above, being roads projected, in progress, or recently completed, estimated at.....	1000.00	200.00	7,000,000
Total.....	4,573.42	2,140.13	\$166,653,464

STATE OF KANSAS.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Atchison, Topeka and Santa Fe.....	400.00	62.00	\$2,500,000
2. Central Branch Union Pacific.....	370.00	100.00	3,720,000
3. Kansas City and Emporia (project).....	110.00		
4. Kansas City and Santa Fe (project).....	100.00		
5. Kansas City and Neosho Valley (project).....			
6. Kansas Pacific (Colo.).....	421.00	421.00	12,000,000
Leavenworth Branch.....	34.00	34.00	
7. Lawrence, Olathe and Kansas City.....	56.00	56.00	1,000,000
8. Leavenworth, Atchison and Northwestern.....	27.00	27.00	1,000,000
9. Leavenworth, Lawrence and Galveston.....	250.00	106.00	4,500,000
Branch to North Lawrence.....	1.00	1.00	
10. Leavenworth and Topeka (project).....	37.00		
11. Missouri River (Pac. of Mo.).....	24.00	24.00	1,000,000
12. Missouri, Kansas and Texas.....	52.00	52.00	12,000,000
13. Missouri River, Fort Scott and Gulf.....	102.00	102.00	6,000,000
14. Pierce City and Fort Scott (project).....			
15. St. Joseph and Denver City.....	261.00	111.00	3,500,000
16. St. Louis, Lawrence and Denver City (project).....	58.00		
Roads not included above, being roads projected, in progress, and recently completed, estimated at.....	1000.00	100.00	3,500,000
Total.....	3,698.00	1,501.00	\$56,723,700

STATE OF COLORADO.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Colorado Central.....			\$
2. Colorado and Oregon.....			
3. Denver and Boulder.....			
4. Denver, Central City and Georgetown.....			
5. Denver and Golden City.....			
6. Denver Pacific.....	50.00	50.00	3,000,000
7. Kansas Pacific.....	218.00	218.00	10,900,000
Roads, including several of the above, of which little is known here, estimated.....	1000.00	103.00	4,000,000
Total.....	1,268.00	368.00	\$17,900,000

STATE OF IOWA.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Burlington, Cedar Rapids and Minn.....	270.00	100.00	\$5,000,000
2. Burlington and Missouri River.....	279.14	279.14	12,500,000
Red Oak to Nebraska City.....	42.00		
3. Burlington and Southwestern (Mo.).....	40.00	4.00	1,500,000
4. Cedar Falls and Minnesota.....	81.00	81.00	3,500,000
5. Cedar Rapids and Missouri River (C. & N. W.).....	271.00	271.00	15,000,000
Clinton, Ia., to Lyons, Ia.....	2.50	2.50	
6. Central Railroad of Iowa.....	235.00	235.00	12,500,000

Corporate Titles of Companies.			
Length in Miles.	Cost of Road and Equip't.		
Total.	Completed.		
7. Chicago, Iowa and Nebraska (C. & N. W.).....	81.30	81.30	5,000,000
Bridge at Clinton.....	1.10	1.10	
8. Chicago, Rock Island and Pacific.....	310.50	310.50	15,000,000
Oskawka Branch.....	113.00	50.00	
9. Davenport and St. Paul.....	40.00	40.00	1,000,000
Branch to Wyoming.....	42.00		
10. Des Moines and McGregor (project).....			
11. Des Moines Valley.....	162.00	112.00	10,000,000
Extension to Fort Dodge.....	81.50	81.50	
12. Dubuque, Bellvue and Sabul (progress).....	35.00		50,000
13. Dubuque and Minnesota (progress).....	293.00		26,000
14. Dubuque and Sioux City.....	143.50	113.00	5,500,000
15. Dubuque South Western.....	4.75	54.75	1,500,000
16. Iowa Falls and Sioux City.....	183.00	186.00	6,000,000
17. Iowa Northern Central (progress).....	83.00		830,000
18. Iowa South Western (project).....	250.00		
19. Keokuk and Minnesota (progress).....	60.00		500,000
20. Keokuk and St. Paul (C. B. & Q.).....	42.75	4.75	1,250,000
21. McGregor and Missouri River.....	280.00	128.00	4,500,000
22. Midland.....	100.00	25.00	750,000
23. Milwaukee and St. Paul (Minn.).....	84.00	84.00	3,000,000
Dakota Branch.....	10.00	10.00	
24. Muscatine, Oskawka and Council Bluffs (project).....	270.00		
25. Muscatine, Tipton and Anamosa (project).....	50.00		
26. Salfata, Ackley and Dakota (progress).....	300.00		300,000
27. St. Joseph and Council Bluffs (Mo.).....	52.00	52.00	2,000,000
28. St. Joseph and Burlington (Mo.) project.....			
29. St. Louis, Council Bluffs and Omaha (project).....			
30. St. Louis and Cedar Rapids (project).....			
31. St. Louis City and Columbus (project).....			
32. Sioux City and Pacific (Veb.).....	80.00	80.00	3,600,000
Missouri Valley Branch.....	6.50	6.50	
33. Southern Iowa and Cedar Rapids (progress).....	87.00		435,000
Total.....	4,432.25	2,550.25	\$11,978,000

STATE OF NEBRASKA.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Burlington and Missouri River.....	180.00	54.00	\$1,500,000
2. Midland Pacific (progress).....	171.00	20.00	2,000,000
3. Nebraska Valley and Loup Fork (project).....	120.00		
4. Omaha and Northwestern (progress).....	175.00	10.00	400,000
5. Omaha and Southwestern (progress).....	65.00	10.00	400,000
6. Sioux City and Pacific (Iowa).....	21.00	21.00	1,000,000
7. Union Pacific (Wyom. & Utah).....	473.00	473.00	32,000,000
Total.....	1,295.00	528.00	\$39,300,000

TERRITORY OF WYOMING.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Denver Pacific (Col.).....	50.00	50.00	\$2,500,000
2. Union Pacific (Nebr. & Utah).....	442.00	442.00	44,200,000
Total.....	492.00	492.00	\$16,700,000

STATE OF CALIFORNIA.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Alameda (Central Pacific).....	257.00	14.00	\$300,000
2. California Central.....	218.00	2.80	1,000,000
3. California and Oregon (progress).....	271.00	1.20	6,500,000
4. California Pacific.....	60.00	60.00	
Marysville Branch.....	41.00	43.00	5,000,000
Cal-sto-g Branch.....	38.00	38.00	
5. Central Pacific (Nebr. & Utah).....	138.00	138.00	27,000,000
6. Feather River and Beckwith Pass (project).....	16.00		
7. Los Angeles and San Pedro.....	21.00	21.00	1,000,000
8. Napa Valley (Napa to Sta. Rosa).....	4.00	40.00	1,000,000
9. North Bend and Mission.....	2.50	3.70	200,000
10. Northern California.....	26.00	26.00	1,200,000
11. Onondaga (San Francisco).....	3.00	3.80	200,000
12. Placerville and Sacramento.....	37.00	26.00	1,450,000
13. Sacramento Valley.....	21.50	22.50	1,275,000
14. San Francisco and Humboldt's Bay (project).....	210.00		
15. San Francisco and Oakland (Cal. Pacific).....	4.00	4.00	
16. San Francisco and San Jose.....	50.00	50.00	2,500,000
17. San Francisco and Washoe (project).....	92.00		
18. San Joaquin Valley (Central Pacific).....	480.00	48.00	1,500,000
19. San Rafael and San Quentin (progress).....	104.00		
20. Sonoma and Russian River Valley (project).....	104.00		
21. South San Francisco.....	4.00	4.00	100,000
22. Southern Pacific.....	60.00	30.00	2,000,000
23. Stockton and Colusa.....	25.00	35.00	2,000,000
24. Stockton and Tulare Valley (project).....	190.00		
25. Western Pacific (Central Pacific).....	120.00	120.00	2,000,000
26. Yuba Valley.....	24.00	24.00	1,200,000
Roads not included above, being roads projected, in progress or recently opened, estimated at.....	300.00	100.00	5,000,000
Total.....	3,293.60	996.60	\$70,624,582

STATE OF NEVADA.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Central Pacific (Cal. & Utah).....	493.00	493.00	\$55,000,000
Roads not included above, being roads projected, in progress or recently opened, estimated.....	1000.00	100.00	5,000,000
Total.....	1,493.00	593.00	\$60,000,000

TERRITORY OF UTAH.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Central Pacific (Cal. & Nev.).....	112.00	111.00	\$17,000,000
2. Salt Lake and Columbia River (Idaho).....	40.00		
3. Union Pacific (Nebr. & Dac.).....	113.00	193.00	2,000,000
4. Utah Central.....	60.00	60.00	4,000,000
Total.....	401.00	364.00	\$19,000,000

STATE OF OREGON.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Cascades Transp.....	6.00	6.00	\$200,000
2. Dalles and Deschutes.....	17.50	13.50	500,000
3. Oregon and California.....	260.00	50.00	1,600,000
4. Oregon Central East side (project).....			
5. Oregon Central, West side (project).....			
6. St. Helen's and Hillsboro' (project).....	60.00		
7. Salem and McMinnville (project).....	40.00		
8. Salt Lake and Columbia River (project).....	230.00		
Roads projected, in progress or recently completed.....	2000.00	100.00	4,000,000
Total.....	2,618.50	149.50	\$6,100,000

TERRITORY OF WASHINGTON.			
Corporate Titles of Companies.	Length in Miles.	Cost of Road and Equip't.	
Total.	Completed.		
1. Northern Pacific (project).....	300.00		
Seattle Branch (project).....	120.00		
Total.....	420.00		

Death on the Rail.

SOME DREADFUL STATISTICS.

A study of the record of the killed and wounded passengers of the railroads of the United States may, if not very entertaining, at least be to a certain degree instructive. We are accustomed to see in the papers of the day accounts of a few killed here, or a score or two injured there, but it is only on compiling these fragmentary evidences of the doings of the "demon on the rails" that we learn anything like the true state of the facts. The following facts are taken from a record for the year ending October 31, 1870. The total number of deaths by the rail was 168, together with 484 wounded, thus geographically distributed:

	Killed.	Injured.
Ohio.....	9	17
New Jersey.....	10	46
New York.....	21	63
California.....	20	23
Iowa.....	12	46
Tennessee.....	1	18
Pennsylvania.....	9	30
Indiana.....	6	18
Vermont.....	5	20
Massachusetts.....	3	12
Mississippi.....	21	15
New Hampshire.....	1	28
Illinois.....	5	26
Utah.....	0	8
Louisiana.....	0	10
Missouri.....	1	0
South Carolina.....	1	6
Kansas.....	27	43
Maine.....	1	9
Virginia.....	15	49

These lists are only passengers killed or wounded by direct railroad accidents, and do not include those run over on the track, or employes of the road killed in discharge of their duty. Kansas, it will be seen, is at the head of the slain, with 27 killed, while New York comes first in the wounded list with 63. The largest number of persons killed at one accident was 21, being upon the Mississippi Central Railroad, near Buckner, when a train upon the 25th of February broke through a trestle bridge, and to which must be added 15 wounded. New York starts off first in the frequency of her accidents, having had 14 by which lives were lost. New Jersey, it will be seen, has not been behind in the deadly contest, having had 5 fatal accidents by which 10 lives were instantly lost, while the number of those mortally wounded is not ascertained, but goes to swell the list of 46 set against her on the list of injured. To these ghastly tables should be added those of lives lost by the blowing up of our river and lake steamers, and the number then shown would indeed be startling.

— We understand that the Cincinnati & Springfield Short-Line managers are negotiating with the Cincinnati, Hamilton & Dayton Railway Company for the joint use of their road, the last named company to proceed at once to double-track their route. Of course the running of a dozen or more extra trains on the road now would overburden it, but the putting down of a second track would make the project feasible, and would give the route advantages superior to those of any other route. If the lease should be agreed to, it will not be many weeks before the Short Line trains will be running through Springfield.—*Springfield Republic, Jan. 31.*

Business Prospects of the South.

The business prospects of the South are slowly improving. It is true that communication is very imperfect, agriculture slow and clumsy, trade uncertain and expensively conducted, and property comparatively unproductive. The contrast in these regards to the state of things in the North is very remarkable by one noting it for the first time. The dilatoriness of the railroad trains, the scant and poor stock of slaves in the interior, the mule teams, awkward in equipment and extravagant in number, the wretched look of poverty in the houses, the want of fences on the farms, and the immensity of swamps, morasses, and weeds generally, with the astonishing proportion of idle men, black and white, and especially the latter, and the slow, lazy movements of the average people encountered on the streets, all strike the Northerner with an emphasis for which their novelty is largely responsible. A little observation suffices, however, to show that a great advance is made in these regards from the state of things *ante bellum*. Though in many details the Southerners are impoverished, have less money to spend, and have less improvements in their property, in one regard their chances of prosperity are many fold increased, and that is in the knowledge they have acquired that henceforth money must be earned if it is to be had at all. That credit must be based on tangible security, business energy and tried probity; that labor has both rights and powers in the shaping of business affairs; that there is no longer to be a monopoly by the South of any one or more sources of wealth in the country, and that as they are brought down to an exact equality with all other seekers for money, so they must win by the same courage, industry, and self-control;—these are facts which the Southern whites have learned painfully so far, but are learning thoroughly. And this year, with the cotton crop very large, and yet not paying the expense of cultivating it, many a tightly-pinched planter is asking himself seriously and sincerely questions, which, if fairly considered, will in due time be answered to the immense advantage of all concerned—such as, what can be raised as well as cotton to be a stand-by when that proves a failure or sells too low? What can cheapen the process of raising all our crops? How can labor be made more interested, honest, stable, and efficient? And, finally, what prevents the ingress, sufficiently rapid and extensive, of capital and labor from elsewhere into this region that so sorely needs them, and would so richly repay them.—*Economist.*

ROUND THE WORLD.—We start from New York and circumnavigate the globe in our imagination thus: To Buffalo or Cleveland, 423 or 625 miles by rail, in seventeen hours; thence to Chicago, 538 or 355 miles, in twenty-one hours; thence to Omaha, 490 miles, in twenty-three hours; thence to San Francisco, 1959 miles, in ninety-three hours; thence to Yokohama, 4714 miles, in twenty-one days; thence to Hong Kong, 1670 miles, in six days; thence to Calcutta, 3500 miles, in fourteen days; thence to Bombay, 1219 miles, in two days; thence to Cairo, 3600 miles, in twelve days; thence to Alexandria, 100 miles, in five hours; thence to Marseilles, 1809 miles, in six days; thence to Havre, via Paris and Rouen, 375 miles, in thirty hours; thence to New York, home again, 3150 miles, in nine days; thus swinging round the circle, 23,739 miles, in seventy-seven days and twenty-one hours, steady travel!

How FAST CAN A WHEEL BE MADE TO REVOLVE?—There is no limit to the number of revolutions which a wheel may be made to make in a given time. Savart, in his experiments on the theory of sound (acoustics,) made wheels to revolve from one thousand to two thousand times per minute; but this has been surpassed by Foucault, who invented an apparatus for measuring the velocity of light, to which a small wheel with a mirror was attached, which might be made to revolve 600, 800, and even 1,000 times per second, or 60,000 times per minute. These are the most rapid revolutions thus far obtained that we are aware of; but there is not the slightest reason why even this should not be surpassed. It is evident that for such great velocities cog-wheels are out of the question; only bands or strings can be used.

— Parties interested in the Fort Wayne, Jackson & Saginaw Railroad have pre-purchased the Fort Wayne, Muncie & Cincinnati Railroad, a line 109 miles in length, running from Fort Wayne to Connersville, Ind. The value of the road is \$2,800,000. This road will be run in connection with the Ft. W., J. & S. Railroad. Connersville is 69 miles from Cincinnati. At Connersville the road connects with the Cincinnati & Indianapolis Junction Railroad to the metropolis of Ohio, and also with the Whitewater Valley Railroad for Cincinnati, and at Muncie with the Bellefontaine Railroad for Indianapolis; also at Cambridge with the Jeffersonville road for Louisville.

— The capital invested in breweries in the United States round numbers is \$60,000,000; in malt houses, \$12,000,000; number of men employed in breweries and malt houses, 10,000. Land devoted to the barley crop, 1,530,000 acres—valued at \$34,000,000; in the culture of hops, 81,248 acres. Total revenue paid to the Government last year on ale, \$1,420,553.

Fresh Garden, Flower, Fruit, Herb, Tree & Shrub, and Evergreen Seeds, prepaid by mail, with directions for culture. Twenty-five different packets of either class for \$1.00. The six classes \$5.00.

20,000 lbs. Evergreen and Tree Seeds; Apple, Pear, Cherry, &c.; Grass Seeds; Beet, Cabbage, Carrot, Onion, Squash, Turnip, and all Vegetable and Flower Seeds, in small or large quantities; also Small Fruits, Stocks, Bulbs, Shrubs, Roses, Verbenas, &c., by mail, prepaid. New Golden Banded Japan Lily, 100. Priced Descriptive Catalogue sent to any plain address gratis. Agents wanted. Wholesale List to Agents, Clubs and the Trade. Seeds on commission.

B. M. WATSON, Old Colony Nurseries and Seed Warehouse, Plymouth, Mass. Established in 1842.

9 2-1-9.

THE RAILROAD GAZETTE, published in Chicago, by A. N. KELLOGG, is a Weekly Illustrated Journal of 21 pages, as large as those of *Every Saturday*.

It contains a complete record of railroad news:—the progress of new roads, elections and appointments of officers, contracts let and to be let, summaries of annual reports, illustrated descriptions of railroad improvements, articles both original and selected on railroad operation and civil and mechanical engineering, and discussions of the relations of railroad companies to the community.

This journal is prepared especially for stockholders, directors, and officers of railroads, and all railroad employers. Price \$4 per annum, in advance.

THE FIRM OF WM. J. YOUNG & CO.

Mathematical Instrument Makers, consisting of Wm. J. Young and Chas. S. Heller, was dissolved shortly before the death of Wm. J. Young. The undersigned, the late partner of said firm (who was with Mr. Young continuously for fifteen years), will continue in the same line of business, at No. 33 North Seventh Street, Cor. of Fifth.

CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-9-70, 27

The Railroad Record.

E. D. MANSFIELD, - - - - } Editors.
T. WRIGHTSON, - - - - }
A. J. HODDER, - - - - }

CINCINNATI, THURSDAY, FEBRUARY 16, 1871.

The Railroad Record,

PUBLISHED EVERY THURSDAY MORNING,

By Wrightson & Co.,

OFFICE—No. 167 Walnut Street.

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Northern Pacific Railroad.

THE FUTURE OF THE GREAT NORTH WEST.

There is a great interior North-west, partly in the United States and partly in British America, which is large enough for ten or twelve States like Ohio, and will probably become the largest and best wheat district on the continent. Supposing this statement to be true (and it is entirely demonstrable), what follows from it? This is a great, fertile, interior district, not bordering on either lakes or great rivers, and therefore to be settled and made valuable, in any reasonable time, must be connected by railroad with the outer world of commerce. Now, the Northern Pacific (taking the valley of the upper Missouri and its tributaries) will pass on the southern margin of this great interior north west; but provision has been made to reach the whole. Let the reader take a map of North America and he will see that the Red river of the North runs almost exactly north through Minnesota to the British territory, debouching into Lake Winnipeg. On the other hand, the Saskatchewan runs east into Lake Winocpeg. The valley of the Saskatchewan is on a direct line and nearly parallel to the general direction of the North Pacific. The valley of Red river is 400 miles in length, and connects the two land systems of the Missouri and the Saskatchewan on the east side. The Northern Pacific Railroad Company have bought and are completing

a railroad through the valley of Red river. Hence, it will be seen at once, that if the Northern Pacific is completed, the whole of this interior north-west will be tributary to the Northern Pacific, will rapidly be settled, and will probably become the great point to which future immigration will be directed. This territory comprises near 500,000 square miles, and is far milder in climate and more fertile in soil than the region on the line of the Union Pacific. This seems a strange statement, but the proposition is confirmed by the most ample evidence. This point is one of great importance, since the land grant made to the Northern Pacific is supposed to be equal to fifty millions (50,000,000) of acres; and in consequence of the late act of Congress, allowing the company to substitute other lands for those taken under the Homestead act, the company's lands will, in some places, extend in intervals for forty miles on each side of the road. It is therefore important to know the value of those lands, with reference not only to the completion of the road, but to the settlement of that great interior country. Here let us say that we think there have been some mistakes made in estimating the sources of profits to railroads. While it is necessary to have some trunk lines connecting the great commercial marts with distant points of the interior, to carry the produce of the interior to market, it is nevertheless true, that the main part of the profits of railroads must depend on their local traffic. We have observed, in traveling on the main lines of New York, Pennsylvania and Ohio, that there were twenty passengers getting on and off at by stations, for one that went through; and the same was true of parcels and boxes. Hence, the very first consideration in making the Northern Pacific is the value and fitness of its lands for actual settlement. It is exactly here that we claim a superiority for the Northern Pacific lands over any land grant made by the Government, except only that to the Illinois Central. The question whether this is true or not is one of immense interest to the whole country, and of great scientific interest to those who are inquiring into climatic phenomena. The well known facts, that east of the Rocky mountains, on the average zone of 35°-42°, are great plains comparatively barren, and that heavy snows are encountered in the passes of the mountains, these facts make people unacquainted with the climatic phenomena of the North west think that there must be the same snows, cold and harrens, even in a greater degree, in the higher northern latitude. This is not true. It is so far from being true, that the very reverse is the fact. Of course, we do not expect the reader to believe this without some proof. To show this more directly, we state the general proposition that, so far as present evidence goes, in the higher latitudes north of the Missouri river there is less snow falls in winter and more rain in

summer than in the latitudes below. We have before us the Explorations made by the United States government, and reported by scientific officers, as well as Blodgett's *Climatology*, and other documents of this character. They are the highest authority we can have, and they are confirmed by the observations of private travelers. The following is a passage from the report of Governor Stevens, Vol. 1, p. 128, of the *Explorations*, and it is supported by corresponding observations of Gen. McClellan:

"The latitude is too high up for a large amount of precipitation, except near the coast. The great summer precipitation of the upper portion of the Mississippi valley shows the line of profuse rains to be at its farthest point northward there at that season of the year. On the plains it extends farther north into British America, and on the coast of the Pacific it stretches from Sitka northward nearly over the whole line of the coast.

From these general facts of the distribution of the water falling in rain and snow in the extreme seasons, the observed facts of the winter climate of the interior are seen to have merely their natural place. Little accumulation of snows can exist in the interior of these latitudes, at whatever elevation; and none of the elevations are such as to give extreme temperatures, or to break the force of the general modifying influences here referred to."

This is conclusive. The great currents of air which largely influence our climate, originate in the Pacific, towards Japan and China, and near the straits of Fuca dividing, carrying one current over the region we speak of, and another far to the south. Thus it is that the more central region is more dry, creating the necessity, as we see in Colorado, of irrigation, and therefore can not for a long time be populous.

Mr. Blodgett says, in his *Climatology*, that "the north-western coast of this continent is even more profusely rainy than any part of the north-west of Europe, and the configuration is less sharply interrupted along the coast north of Puget's sound than it is south of that line. If positive evidence were wanting in regard to any part of the interior plains above the 45th parallel, it could not reasonably be inferred that they were wanting in an adequate supply of atmospheric moisture." Governor Stevens was of the opinion that not more than one-fifth of the land from Red river to Puget's sound is unarable, and that this is largely made up of mountains covered with valuable timber. The United States Land Commission says on this point: "It is evident that an immense agricultural country is here waiting development." All the observers of the country agree in this statement of facts in regard to the arability and mild climate of the region north of the "plains," in the center, and constituting the great interior land basin.

There is another and higher evidence of the true character of that country in the isothermal lines, that is, the lines of like vegeta-

tion, or of like climates for vegetation. It is quite remarkable, taking the line at New York for example, how much farther north the isothermal line runs when going into Europe on the east, or the western part of our continent on the other side. The isothermal line of New Haven (Conn.) passes through Cleveland on Lake Erie, through Chicago, thence rapidly north, crossing the Mississippi on the 45th parallel, crosses the boundary of the United States, and enters the valley of the Saskatchewan. Who, looking only at lines of latitude, would have supposed that the vegetable line of New Haven would be the same with that of the valley of the Saskatchewan in British America. But lines of latitude and lines of boundary disappear in the presence of great natural phenomena. Ireland and England are among the richest parts of Europe, yet they are in comparatively high latitude.

From Lake Superior to the point where the Northern Pacific will strike the Rocky mountains is near 1,000 miles. This is a great plateau, over which, on its western side, the waters of the Missouri flow; on the north side those of Red river, and on the east the Mississippi and Lake Superior. Leaving the west end of Lake Superior, the road will pass over this plateau, with very little obstruction or difficulty of grades, for nearly a thousand miles. Col. Milnor Roberts, who went over the whole route and made an interesting report, estimates the cost of 400 miles east of the pass in the Rocky mountains at only \$28,000 per mile. This shows at once that there are no serious obstructions of any sort.

It is not our intention here to go into any of the questions of cost and construction, but to show most clearly that the great land grant given the company is most amply sufficient for the completion of the work, because the greater part of it is of good quality and in a good climate, which must insure, as it has done in Illinois and Iowa, an early actual settlement, creating a demand for the lands, and a profitable traffic for the road.

In confirmation of what we have said, Col. Roberts thus says:

"No main trunk line can enjoy a more advantageous position in this respect than the Northern Pacific road; and to a very considerable extent this will apply in the case of the crossing of the Dacotah, the Mississippi, and the Red river; the productions of the Red river, owing to the extent and wonderful fertility of its valley, will at once create a remunerative trade on the eastern end of the road. This region, it is well known, is admirably adapted to wheat, and intelligent gentlemen who are familiar with its characteristics, have estimated that there are fifty millions of acres of cultivable land in the Red river valley alone, which may be profitably devoted to the raising of wheat and other cereals. Branch lines will undoubtedly be constructed leading from the Northern Pacific trunk along the St. Louis river, the nearest to Lake Superior, as well as along the Mississippi, the Red

river, the Dacotah river, and the Milk river branch of the Missouri. These branches will be met by the Canadian improvements, bringing into this connection the extensive regions along Lake Winnipeg, including the valley of the Assiniboine. A branch from the Missouri, reaching to Milk river and up that stream to the great Saskatchewan valley of Canada, will at no distant day constitute a very important feeder of the Northern Pacific line, opening to that territory railroad outlets to the navigable waters of the Atlantic coast by way of Lake Superior, and to the gulf of Mexico by the valleys of the Missouri and the Mississippi."

If any one wishes to understand this part of our country, and to see clearly the vast undeveloped resources of the north-west, let him take the best map he can find, and Blodgett's map of isothermal lines, and he will soon see the correctness of all we have said. It is of great interest to those who are interested in the future settlement and prosperity of our North western territory. Forty millions of people can settle in and be supported by the country we have described.

Cincinnati Southern Railway.

ITS DEFEAT IN THE KENTUCKY LEGISLATURE.

The defeat of this measure in the State Senate of Kentucky was a matter not wholly unanticipated by its friends either in that body or elsewhere. Whatever regrets we may have on account of the delay that is occasioned by this defeat, we certainly are not going to cry over spilled milk. The causes which led to this result are perhaps best known at Frankfort, but there can be no doubt that the influence of the Louisville & Nashville Railroad was brought to bear directly on the question, backed up by a powerful lobby representation from the city of Louisville, mainly of parties either directly under the pay of the above named institution or incidentally connected with it.

Then there were parties in Louisville who honestly hoped by the construction of the contemplated Louisville & Chattanooga Grand Trunk Railroad, to turn the tide of Southern commerce to that city, and retain it there, or at least to make it pay them tribute. The effort was laudable (it will be many years before this road is built, if ever), and hence they opposed this grant of the Cincinnati Southern as a competing line.

The same feeling existed in reference to the Cumberland & Ohio Railroad. The parties interested in it feared that if this Cincinnati Southern Railway was allowed to be constructed, their road would never have any more real existence than it now has, which is only on paper, and in the hopes of its friends. By delay of the wishes of the Cincinnati trustees, it was and is hoped to force necessary aid to give vitality to this enterprise. This is also true of other contemplated routes in which other members are interested.

The Maysville members opposed it, because they desired to constitute their town the terminus on the Ohio river of the 'Short line' between the South and the North. To this end, a year ago, they had the promised aid of the great Pennsylvania Railroad, who contemplated aiding in the construction of the Maysville & Lexington Railroad, and also of a line from Maysville to Columbus, O. They furnished, however, the *ingenious argument* against the measure, of the "great danger of allowing a *municipal corporation* to hold property in a neighboring State." This was presented as a very dangerous principle, and that ought not to be inaugurated. It was admitted that they might buy a road already constructed, with all its franchises, but to "acquire the right of way and construct" would be "extremely dangerous."

How much less this danger will be if granted by Congress, and under the control of the United States courts, than it would be if asked for of the Kentucky Legislature by the Trustees, and petitioned for by the people of central Kentucky, we leave it for the people of Kentucky themselves to determine. Certain it is that the dog-in-the-manger policy can not dam up the currents of trade, or stop the progress of greatly needed works of internal improvement. We trust Congress will promptly pass the bill.

A Bill to Promote the Construction of the Cincinnati Southern Railway.

"WHEREAS, It is represented to this present Congress, that Miles Greenwood, Richard M. Bishop, William Hooper, Philip Heidelbach, and Edward A. Ferguson, of the city of Cincinnati, in the State of Ohio, were appointed under and by virtue of an act of the General Assembly of the said State of Ohio, passed on the 4th day of May, in the year 1869, a Board of Trustees, with authority by the name of the Trustees of the Cincinnati Southern Railway, to borrow a fund not to exceed ten millions of dollars, and to issue bonds therefor in the name of the said city of Cincinnati, under the corporate seal thereof, of which said bond the said Miles Greenwood, Richard M. Bishop, William Hooper, Philip Heidelbach, and Edward A. Ferguson, and their successors are to be Trustees, with power to expend the same in procuring the right to construct and in constructing a single or double track railway, with all the usual appendages, including a line of telegraph between the said City of Cincinnati and the city of Chattanooga, in the State of Tennessee, to be called and known as the Cincinnati Southern Railway, and with power and capacity for the purposes aforesaid, to make contracts, appoint, employ and pay officers and agents, and to acquire, hold and possess all the necessary real and personal property and franchises, either in the said State of Ohio or in any other State into which the said line of railway may extend, and with other powers in said act expressed; therefore

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the said Board of Trustees, namely: Miles Greenwood, Richard M. Bishop, William Hooper, Philip Heidelbach, and Edward A. Ferguson and their successors, by the name of the Trustees of the Cincinnati Southern Railway, be and they are hereby authorized, subject to the provisions and restrictions in the act provided to construct and maintain the said line of railway with a single or double track, with all the usual appendages, including a line of telegraph, and the bridges necessary to carry said railway across the navigable rivers intervening between the termini thereof; to exercise the powers vested in them by said act of the General Assembly of Ohio, in leasing the same.

"SEC. 2. And be it further enacted, That before any bridge shall be commenced under this act, the said Trustees shall submit to the Secretary of War, a plan of the bridge and piers, with a detailed map of the river at the proposed site of the bridge, together with all other information touching such bridge and river as may be deemed requisite by the Secretary of War; Provided, that the bridge across the Ohio river shall have an unbroken or continuous span across the main low water channel of an elevation not less than ninety feet above low water mark, nor less than forty feet above extreme high water mark as understood at the point of location, mea-

suring for such elevation to the bottom chord of the bridge, and all the spans, other than the one over the main low water channel shall be at least two hundred and fifty feet in length, in the clear, and the span covering the main low water channel shall be of such length as to leave at least four hundred feet for unobstructed passage way for navigation at all stages; Provided further, That before the Secretary of War shall grant permission to said Trustees to construct a bridge across the said river Ohio, he shall detail a Board to be composed of three experienced officers of the Corps of Engineers, to examine the proposed location of said bridge, and report what length of span and other conditions they deem necessary to secure a passage way that shall not unnecessarily obstruct the navigation of said rivers.

"Sec. 3. And be it further enacted, That the Secretary of War is hereby authorized and directed, upon receiving said plans, maps, reports, and other information, and being satisfied that a bridge can be built at either of the proposed localities which will not unnecessarily obstruct or injuriously modify navigation, to notify in writing the said Trustees that he approves the plan and location of the same; and upon receiving such notification, the said Trustees may proceed to the erection of such bridge, conforming strictly to the approved plan and location.

"Sec. 4. And be it further enacted, That in case of any litigation arising from any obstruction or alleged obstruction to navigation created by the construction of any bridge under this act, the cause or question arising may be tried before the District Court of the United States of any State in which any portion of said obstruction or bridge touches.

"Sec. 5. And be it further enacted, That said Trustees are hereby empowered to purchase, lease, receive and hold such lands or other property as may be necessary for accomplishing the objects of this act, and may, by their agents, engineers, contractors or workmen, immediately enter upon, take possession of and use all such lands and property as may be necessary for the construction, maintenance and operation of said railway, and the accommodations requisite and appertaining thereto. But all lands or property thus entered upon and appropriated by said Trustees which are not donations, shall be purchased by said Trustees of the owner or owners of the same, at a price to be mutually agreed upon between them. And in case of a disagreement as to price, and before taking exclusive possession of the track of said railway and its appurtenances, the said Trustees or the owner or owners of such lands or property, shall apply by petition to the Justice or Justices of the Supreme Circuit or District Court of the United States having jurisdiction in the State or locality in which said lands or other property may be situated, particularly describing the same, and the said Justice, upon receiving such application, shall cause such notice to be given to the other party as he shall deem proper and sufficient, appointing therein a time and place of hearing the parties; at which time and place, upon proof that the notice directed has been given, the said Justice shall direct the manner of ascertaining the true value of said lands or other property, together with the damages which the owner or owners thereof have sustained or may sustain by reason of the appropriation, occupation, and use thereof by the said Trustees. And the said Justice shall appoint not less than three nor more than seven competent and disinterested Commissioners, who shall be freeholders in the State or district, and at least one of whom shall be a resident of the county in which said lands or other property may be situated, and who shall, under the direction of the said Justice, view said premises or property, take such testimony as they may deem proper, make appraisal, and determine the said damages, and report the same under oath, and in writing to the said Justice. The report shall contain a minute and accurate description of the lands and other property appraised, together with all the evidence taken by the Commissioners in the case. It shall be the duty of the said Justice to examine the report of the said Commissioners; and, upon the application of either party, he shall give the parties a hearing in relation thereto; and he shall unless a jury be demanded, have power to increase or diminish said appraisal or damages, if he shall become satisfied, upon such hearing, that injustice has been done. But either party may have a jury to determine the amount of damages; and in case such jury be demanded, the case shall be tried at the next term of the Circuit Court of the United States, under such rules as the Court shall provide. Upon proof to the said Justice, to be made within sixty days after his determination of payment to the owner, or of depositing to the credit of the owner or his legal representative, in such incorporated moneyed institution as the said Justice shall direct, the amount of said award, and the payment of all expenses attending the same, including an allowance of five dollars per diem to each of the aforesaid Commissioners, the said Justice shall make an order or decree particularly describing said lands or other property, and reciting the appraisalment of damages, and the mode of making it, together with such other facts as he may deem pertinent, and when the said order or decree shall be recorded in the Clerk's office of the county, town, or city in which such lands or other property may be situated, and also in the office of the Secretary of the Interior, the said Trustees, their successors and assigns, shall be legally and equitably seized and possessed of such lands and other property for the purpose hereinafter described. In case any married woman, infant, idiot, insane person or non resident of the State or district in which said lands or other property may be situated, shall be interested in such lands or other property, the said Justice shall appoint some competent disinterested person to appear before said Commissioners and act for and in behalf of such married woman, idiot, infant, insane person or non-resident; provided, however, that the said

Trustees shall not have power to condemn for its use the property of any railroad company chartered by the laws of any State, except so far as the same may be necessary for crossing the line of such railroad, doing no unnecessary damage thereto.

"Sec. 6. And be it further enacted, That if, during the construction or after the completion of said line of railway, it shall be found necessary by said Trustees to change the location or grade, or to substitute other works or conveniences for those originally designed or constructed, or to provide additional side tracks or other appurtenances for the proper management and operation of said railway, the said Trustees may make such changes and provide such additional appurtenances, not departing from the general route originally selected by them; and, for the purpose aforesaid, may acquire or enter upon, take and appropriate, such lands or other property as may be necessary, in the mode hereinbefore prescribed.

"Sec. 7. And be it further enacted, That the gauge of the said Cincinnati and Chattanooga Railway shall be of uniform width, or so as to carry one set of cars throughout its entire length; and the entire railway shall, with its outfit fixtures and structure, together with all its appurtenances, be equal in character and workmanship to any of the first-class railways of the United States.

"Sec. 8. And be it further enacted, That said Trustees shall survey and locate the route of said line of railway, and actually commence the construction thereof, within one year from the passage of this act, and shall continue such construction and complete the work within five years from its commencement, or within such further reasonable period as the Secretary of the Interior may grant upon satisfactory evidence that they are progressing with due diligence and in good faith. A map and profile of said railway and any alteration or addition herein authorized shall be deposited with the Secretary of the Interior within such time as he may prescribe.

"Sec. 9. And be it further enacted, That the respective holders of all the bonds issued by said Trustees under said act of the General Assembly of Ohio are hereby declared to be entitled to hold, by way of mortgage, without any conveyance, the said line of railway and its appurtenances, and the net income thereof, and all the estate, right, title and interest of the said City of Cincinnati and of the said Board of Trustees therein, until the respective sums mentioned in said bonds and the interest thereon shall be fully paid, without any preference one above another, by reason of priority of date of any such bonds, or of the time when such holder became the owner of the same, or otherwise howsoever. The mortgage lien, hereby given, is to vest, as soon as rights of way, or lands whereon are to be placed the works and conveniences used in constructing maintaining or operating said railway, are acquired or taken by virtue of the powers of said Trustees: Provided that nothing herein contained shall affect the lien of any prior owner upon the lands sold to or appropriated by said Trustees, nor be held to include the rolling stock used in operating said road.

"Sec. 10. And be it further enacted, That if any suit or proceedings, either in law or equity, or any criminal prosecution shall be commenced in any State Court, against said Trustees, their successors or assigns, or any person authorized or employed by them, for any act done or omitted to be done, in and about the construction of the railway hereby authorized under and by virtue of this act, and in which the validity of any franchise conferred by this act is denied, or to restrain by injunction or otherwise the construction, completion, or operation of the said railway, and the defendant shall, at the time of entering his appearance, or within thirty days thereafter, in such Court, in said action or proceeding, file a petition stating the facts, and verified by affidavits, for the removal of the cause, for the trial at the next Circuit Court of the United States to be holden in the district where such suit or prosecution is pending, and offer good and sufficient security for his filing in such Circuit Court, on the first day of its next session, copies of the process and of other proceedings against him in such State Court, and also for his appearing in such Circuit Court, and entering special bail in the cause of proceeding, (if special bail was originally required therein,) it then shall be the duty of the State Court to accept the security, and proceed no further in the cause or prosecution; and the bail that shall have been originally taken in such State Court shall be discharged. And upon such copies being filed as aforesaid, in such Circuit Court of the United States, the cause or prosecution shall proceed therein, in the same manner as if it had been brought in such Circuit Court, whatever may be the amount in dispute or the damages claimed, or whatever may be the citizenship of the parties, any law to the contrary notwithstanding. And any attachment of the goods or the estate of the defendant by original process from such State Court, shall hold the goods and the estate so attached to answer the final judgment in the same manner as by the laws of such State they would have been holden to answer final judgment had it been rendered in the Court in which the suit or prosecution was commenced; and from any final judgment rendered in any such suit or prosecution by such Circuit Courts, a writ of error shall lie to the Supreme Court of the United States, whatever may be the amount of such judgment, any law to the contrary notwithstanding.

"Sec. 11. And be it further enacted, That the said line of railway, with the bridges hereby authorized to be constructed, shall be deemed and considered a national public highway and post road for the transmission of the mails and the troops and munitions of war of the United States and no tax on transit duty shall be imposed by virtue of any State authority upon the traffic of said company, its freight or passengers; and no property tax shall be levied on the property of said road at a higher *pro rata* than is levied by the laws of said State upon the property of all other roads constructed in said State under the laws thereof.

"Sec. 12. And be it further enacted, That the charges for transportation on said railway shall not exceed thirty-five cents per hundred pounds on heavy articles, and ten cents per cubic foot on articles of measurement, for every hundred miles, and five cents per mile for every passenger.

"Sec. 13. And be it further enacted, That the lines of railroads carrying the mails of the United States which may be or are now constructed under the authority of the States through which the railway hereby authorized shall pass, and which may meet or intersect the same or its connections, shall have the right to connect, for the purpose of transportation, with the railway hereby authorized, on fair and equitable terms, under the *pro rata* system now customary upon main lines in the United States. Provided, That the lines of railroad so claiming the right to connect shall reciprocate in traffic with the line hereby authorized, upon the same terms, and without any discrimination or prejudice against it. Such connecting lines shall have the right to sell through tickets, check through baggage, and transport freight in such manner and upon such terms as are customary between connecting lines of railway. And through tickets, through checks for baggage, and through receipts for freight shall be furnished by the persons or company operating the lines hereby authorized over such lines of railway as may connect with it, and as the traveler and shipper or consignor may select, and without discrimination or prejudice to any one or more of said connecting lines of railway.

"Sec. 14. And be it further enacted, That the persons or company operating said railway or any part thereof as lessees or otherwise, shall receive and carry all passengers or freight coming or brought to it or them to be carried, and shall keep an agent in every county through which the said railway runs, upon whom service of process may be made.

"Sec. 15. And be it further enacted, That the said Trustees shall keep an office and an agent in the city of Covington, Kentucky, upon whom service of process may be made. They may sue and be sued in the Courts of the United States by the name of the Trustees of the Cincinnati Southern Railway. They and the persons operating said railway as lessees or otherwise shall make an annual report to the Secretary of the Interior to be in such form, verified in such manner and containing such items as he may prescribe.

"Sec. 16. And be it further enacted, That if any person shall wilfully do, or cause to be done, any act or acts whatever, whereby any building, structure or other work, or any engine, car or machine, or other property appertaining to said railway shall be injured, impaired, destroyed or stopped, the person or persons so offending shall be guilty of a misdemeanor, and, on conviction thereof by any court or competent jurisdiction, shall be punished by fine not less than one thousand dollars, nor more than five thousand dollars, or by imprisonment not less than two years nor more than five years, or both, at the discretion of the Court, and shall also forfeit and pay to the party aggrieved double the amount of damages sustained by means of such offense, to be recovered by the party aggrieved with costs of suit by an action of debt or case.

"Sec. 17. And be it further enacted, That the following words and expressions in this act shall have the several meanings hereby assigned to them, unless there be something in the context repugnant to the construction; that is to say, the word 'lands' shall include not only lands and every estate therein, but also easements and franchises connected therewith. The word 'Trustees' shall mean Trustees for the time being, appointed under the said act of the General Assembly of the State of Ohio, and shall include the said Board of Trustees and their successors. The expression 'line of railway and its appurtenances' shall extend to, and include the works and conveniences of the said railway, such offices, stations, shops, sheds, depots, car-houses, and other buildings, bridges, viaducts, tunnels, arches, piers, abutments, embankments, approaches, ways, aqueducts, culverts, sewers, drains, wharves, yards, fences, telegraph posts and wires, tracks, turnouts and turn-tables, and the right of way and lands belonging to said Trustees, whereon the said and other like works and conveniences used in constructing, maintaining or operating said railway are placed. The expression 'Act of the General Assembly of the State of Ohio,' shall mean the act of the General Assembly of the State of Ohio, entitled 'An act relating to cities of the first class, having a population exceeding one hundred and fifty thousand inhabitants,' passed on the 4th of May, in the year 1859. The expression 'line of railway,' shall mean the line of railway between the city of Cincinnati, in the State of Ohio, and the city of Chattanooga, in the State of Tennessee.

"Sec. 18. And be it further enacted, That this act shall be deemed and taken as a public act, and, as such, notice shall be taken of it by all Courts, without the necessity of pleading the same, and may be altered, amended, modified, or repealed by the Congress of the United States, as the public good may require."

— It appears from a pamphlet just issued by the financial agents, that the earnings of the Central Pacific Railroad, since the main line was put in operation, were over \$18,000,000, and that of this sum \$10,000,000 were net earnings over expenses of operating the road. When these expenses had all been paid, and the interest on the bonded debt, there was still a surplus of \$6,000,000.

Chesapeake & Ohio Railroad.

HOW SHALL IT ENTER CINCINNATI?

Probably the greatest difficulty in the way of the Chesapeake & Ohio Railroad extension to this city is the manner of entering it. How shall this be done? It can not come in from the east upon the narrow river margin under the hills, because the only practicable part for a railway track is already occupied by the Little Miami road, and no one has been quite bold enough to suggest the condemnation of the remainder of this strip of land. It would not alone be very costly, but would obstruct the present street way, and would require an immense outlay to construct a roadway upon it.

It can hardly be expected to use the Baltimore & Ohio entrance, as this road is the principal rival of the Chesapeake & Ohio, and they would not continue long upon terms of amity, even if they entered upon them. Such a road can not afford to pay tribute to any other, nor be subject to the control or exactions of any other interest whatever.

This, therefore, will not do.

Nor would it be a wise policy to construct a new line across the Miami valley and into the city by Mill creek. The present effort of the B. & O. Company in that direction is sufficient to deter any other company from such another undertaking. Besides, altogether the best ground in this direction is now occupied.

Nor could it with much advantage find the Cin., Ham. & Dayton road, and by that route reach the city at the foot of Fifth street, or diverge from that line and pass into the old canal bed and the I & C. depot at Central avenue and Plum street. These entries are already crowded, and will become more and more so every year. Their depots are not capacious enough; besides, the roads now using them have such paramount rights as would leave this great line far in the back-ground. This will hardly answer. Indeed from the experience we have had in such matters in this city, as well as elsewhere, we assert that such arrangements will not do at all, and if engaged in can only be of the most temporary character.

If this great road is what we all expect it will be—in fact what every intelligent railroad man knows it must be—it will play second fiddle to no other, and will drive its way over all obstacles, so as to be upon a first class footing, and this it can not attain until it possesses an independent entrance into this city, or such a control of one as can not be disturbed, and as shall be as advantageous in all respects as any other.

If we are right in these views (and can there be any doubt about it), it is evident that there is but one way left that fills all these requirements, and that is by *the Tunnel*. If this hole was made through Walnut Hills, and the way fixed up so that trains could pass to

the head of Broadway, and thence down Eggleston avenue to the bridge, &c., there would be a great scramble among all the railroad corporations owning roads entering this city from the north-east and north-west, for its control, or equal rights in its privileges. In this scramble there is every reason why the Chesapeake & Ohio Company could afford to stand upon an equal footing with all others, if not come out a little ahead. By this entry it can secure all it wants in this particular, and by no other; and if this question was settled one of the great obstacles to the extension of this important scheme would be out of the way.

Col. Trimble, in his efforts to bring this road to us by way of Hillshoro (a most commendable route), feels the force of this difficulty, and undertakes to overcome it only by *expecting* something will happen when the time comes that will answer the purpose. This is a most lame conclusion. Things don't always happen just right, and we think such fortunate happenings are less likely to railroad corporations than to most any other of human inventions. Every appeal that has been made to our people for a solution of this question has been unsatisfactorily responded to. The right ideas have not occurred to them upon this subject, or, if they have, they were soon dispelled for the want of intelligence upon the ease and economy in construction of this Tunnel. Men have regarded it as a stupendous folly, an impracticable if not an impossible thing to make, and have neither examined the matter for themselves, nor consulted those who know all about it.

Now let us look at this engineering *bugaboo* a little, and perhaps we shall find that there is nothing alarming about it after all.

Because it is a tunnel, all underground, in the dark, with a great hill above it, we must not be intimidated. Whatever tunnels may once have been, in the early days of engineering, they are ordinary work now. In very many instances they are easier and cheaper to make than deep cuts through hard materials, or where the sides must be sustained by stone walls. After our building railroads through the Alleghany and Rocky and White mountains, we need have no fears about tunneling. We understand it quite as well as bridge or any other part of railroad building. It is only a question of money now-a-days, and this again is a question of the quality of the material to be cut through, the interruptions to the work and perils by water, the extent to which the excavated material must be removed, the facilities for conveying air to the workmen, and the convenience of stone or brick, or both, for the sustaining walls and arch.

We say these are the essential particulars to be considered.

Now, with these facts before us, we aver, that the tunnel under consideration is one of the easiest and cheapest to construct in the United States.

1st. Because it is straight as a gun-barrel.
2d. The grade line is below the water veins, and the floor of the Tunnel perfectly dry.

3d. The geological formation of the hill through which this Tunnel is to pass is longitudinal stratas of thin rock, imbedded in clay. The removal of the material is therefore comparatively easy.

4th. The stone thus excavated are used in the side walls, and can be worked into the arch if desired.

5th. The locality for wasting the dislodged earth is convenient as possible, and quite ample for the entire work.

6th. The workmen are supplied with air in the least expensive way, viz: by three shafts of large dimensions sunk from the surface to the grade.

Such are the favorable features in this important work. Every railroad contractor at all experienced in these matters will see at once that there is nothing formidable in this undertaking, so far as the physical difficulties are concerned, but that it is a most desirable job, and can be done quickly—within fifteen months from a fair start—and that when done it will be the safest and least expensive roadway to sustain in the Ohio valley.

We might go on and give the cost in detail of constructing this work, the number of cubic yards of earth to remove, perch of stone and quantity of brick and other material necessary to its completion. We have the estimates before us. But this article is already extended beyond our purpose when we set out writing it. Besides, our object was to show, in the first place, that the new Virginia road, if brought to this city at all, must find a new entrance into it, and that the Tunnel is the best that can be found; and secondly, to remove some of the objections that are made against the practicableness of this undertaking, by giving a few facts not generally known or understood.

We shall consider this subject further in another number of the RECORD.

The Springfield Short Line.

ANOTHER FOREGONE CONCLUSION.

When the votes of the Cleveland & Columbus and Sandusky companies were had in favor of the Short Line, we were assured it (the Short Line) was a foregone conclusion. But since then negotiations have been pending with the Cin., Ham. & Dayton company, and as these are not yet quite satisfactory, we are reassured that the thing is a "*foregone conclusion*" again. And so we suppose it will keep on foregoing, first upon one side and then upon the other.

There is one satisfaction in all this polly-foxing, the people don't hate as they once did. They have foregone and concluded that the Short Liners are a grand set of that worst of all things on earth, played-out humbugs.

A Railroad to the Straits.

If any one doubts that some time or another there will be a railroad built from this city, or from some eligible point on one of the roads now running northward from this city to the lumber regions of Michigan, he need only keep track of the charters that are obtained, and the organizations that are effected to build this road, and the immense amounts of capital stock declared, to be relieved of any further apprehension upon the subject.

For the past twenty years, the question of building a railroad through the western tier of counties of this State has been in every possible phase of agitation, and once within that period the preliminary work upon a line from Greenville northward was completed, and about fifty miles of the first section, extending to Van Wert, was graded.

Since the suspension of this effort, there have been three companies organized to build this road, either in whole or in part, and the newspapers have regularly announced the strength of the parties interested, and paraded the long lines of figures that told heavily upon the verdant; and the good people upon the line have as regularly undergone their paroxysm of railroad mania.

There is now, we believe, a company organized to build a road from Dayton to Saginaw, known as the Stillwater Valley scheme, with a capital stock of a million and a half of dollars, and another project is under the auspices of the Cincinnati & Michigan company that proposes to build a road from Cincinnati through Warren and Butler counties, striking Germantown, thence on through Montgomery, Miami, Darke, Mercer, Paulding, Defiance and Williams, and intersecting the Cincinnati & Mackinaw Railroad at the northern line of Williams county. This company has a million or two of dollars to dispose of.

And still another, of the small gauge pattern, that takes its start from Piqua, and is to follow the meanderings of the canal and the reservoir, until it strikes the midland line leading northward.

And we hear of another, that has not yet taken shape beyond the airy castles of its projectors' brains, that is to start from Eaton, thence by an *air line* go somewhere towards the north pole.

Now all this indicates the restless ambition of schemers, and the growing wants of that part of the country this road is intended to supply. It shows, also, that any project that proposes to tap that northern region has something substantial to recommend it, and that the agitation of the question will not probably cease, but will increase with the growing demand for such a work until it is supplied.

This is our firm conviction of the matter, and from our acquaintance with all that has been done in that direction towards railroad improvements for the past ten years, we shall claim respect for our views.

But why project half a dozen schemes to meet this demand? This is what we are objecting to. What are all these new roads but the old Cincinnati & Mackinaw project? Why scatter efforts so that they are sure to prove unavailing, when if concentrated they would as surely prove successful? We happen to know that the reason there is not a road now running from Dayton to Saginaw is because more parties who ought to have been interested in its success fought it than there were who sustained it. Had they labored half as hard to have made this grand old work as they did to cripple and kill it, they would long since have been in the full enjoyment of its benefits. But they didn't see it then, and from their movements we are of the opinion they are as blind as ever, and don't see it now. Their scattered ideas have become embodied in great impracticable organizations that are doomed to collapse.

Getting up organizations is comparatively easy, and fine talk and writing, good and necessary at the right time and in the right places, are easily obtained, but it takes money to build railroads, and so much of it, too, that it requires all that can possibly be obtained in a wealthy section of country, much less a new and comparatively poor one, such as this line must pass through for many miles. It will not do, therefore, to scatter the efforts and means to build this northern road. If it can be done at all, it can only be by a long pull, a strong pull, and a pull altogether.

When the people interested learn this, and are willing to act thus, they will soon after have a railroad, and not until then.

The Hudson River Railroad Accident.

The awful accident that occurred upon this road last week, by which nearly forty persons lost their lives, naturally suggests the inquiry whether there is any means known by which it might have been prevented, or probably rendered less shocking. This may be said to depend upon so many things, that if we allow ourselves to branch out upon them, we would never reach the essential point in the question. If the axle of one of the freight cars had not broken, or the express train had not passed just at that time, &c., &c., of course this terrible catastrophe could not have occurred. But this is dodging. The square issue is this: Is there any means by which notice of the accident upon the bridge could have been given to the officers in charge of the fast train, notwithstanding the shortness of the time between the happening of the accident and the arrival of this passenger train upon the bridge?

We answer most emphatically, yes!

We suppose, of course, that the freight train conductor knew that this passenger train, if on time, must pass him within a short distance from this bridge, and also that he was not so far beside himself as not to know when

one of his freight cars tipped over upon the opposite track, that unless he could stop the coming train there must be an accident of some kind, and the circumstance must have impressed him to believe that it would be a very serious one.

With this knowledge, what, we ask, was his duty? Every one will say at once to give the alarm to the approaching train. But what are the means under his control or in general use for such a purpose? Simply a man and a flag. Now if these trains had been two miles apart, and the passenger train was running at the rate of 30 miles an hour, which is the reported fact, and at the very moment of the accident a man had started out with a flag or light to signal the approaching train, he might have gone one quarter of a mile before the train passed him, this would be a signal of a half a mile at least, if the road was straight, or the curve that intervened not very sharp. This was time enough to bring the train to a stop, indeed it could have been brought to a halt if the flag or light had not been seen until just opposite the engineer of the running train. But the great trouble is flagging down a train at all under such circumstances. The engineer would not be on the look out for a signal of distress, in such a place. The very fact that the road is double-tracked adds to this sense of security. Besides, the duties of an engineer upon such a train are very engrossing, or his attention might be attracted to the other side from that upon which the signal was displayed, or he might mistake the little rag or spark for a bush or a lens, or he might be subject to that common infirmity, color blindness—in short we know that there are numerous difficulties in the way of correct signaling by this means, and particularly at such times. Reliance upon sight signaling alone has cost hundreds of thousands of dollars, and many precious lives, and will cost many more if continued.

In truth, we should not depend in such important matters upon but one of our senses, and that one the most liable to deception. We should also appeal to the sense of hearing, that is more reliable, and that can be reached from afar as well as near, and without having the means of alarm in any particular position, or direct line or peculiar angle, as in the case of vision.

It is by this means we believe this accident, or if not this one, such accidents generally, could have been prevented, and probably would have been, had such an appliance been in use upon the Hudson River road.

Let us suppose that large heavy sounding gongs were placed three or four hundred yards apart, upon the telegraphic poles beside the track, and always upon bridges, and over each of these gongs was placed a hammer that could be moved electrically, so as to strike it a good smart blow, and at the will of the operator continue to strike rapidly or slowly, and that these movements could

be made from any telegraph pole or bridge upon which was fastened a gong, just as the person who first witnesses a fire in our city goes to the fire alarm box and sends the message to the man in the lookout upon the fire department building. What, with such an arrangement, would or could have been done to notify the conductor of this fast train upon the Hudson River road? Why, in no instance would the conductor of the freight train have had to go over one hundred and fifty or two hundred feet to a signal box, and from that box he could have sounded every gong between him and the approaching train, which would have been at least eight and probably ten. He could have kept up the ringing as rapidly and as powerfully as possible, so that if one, two, three, or even more of the gongs were passed without the signal they were giving being noticed by some of the officers or hands of the fast train (a very doubtful supposition), there would still be several more opportunities to attract their attention in time to stop the train and save all, or so check it up as to mitigate largely the damages that might otherwise occur. Here are seven chances at least to convey the idea of danger, instead of one as with the red flag. And these chances are multiplied, because every hand on the train would be likely to hear the sounds, whereas only one man is likely to see the flag. Besides, they would probably be heard whatever the conductor or engineer might be engaged in, and if the flag signal was used also, as it ought to be, they would immediately be upon the look out, and the more likely to recognize and distinguish the sign that is now so often mistaken or passed unobserved.

At any rate, two of the senses would be appealed to instead of one, which is sufficient to commend the adoption of the new method, to say nothing about the great advantages it has over the old, by which it may be considered as adding ten-fold in favor of the prevention of such accidents in a calculation of probabilities.

Now, we submit to any impartial judge whether if such signaling had been done from the bridge upon the Hudson River Railroad, where the freight train broke down, is it not fair to presume that these thirty-eight persons so horribly killed would have been living—that this loss of property would not have happened—that the public would not have been shocked with the sickening details of this slaughter—and that the railway management of America would not again be charged with the most shameful neglect of the public weal, or the most unpardonable incapacity.

—The Erie Railroad managers have notified the United States Express Company that on and after March 1, 1871, the traffic of the United States Express and Great Western Dispatch over the Erie road would cease. It is understood that the New York and Boston express line will be extended over the Erie road after that date.

Narrow Gauge Roads.

The following letter will be found interesting to such of our readers as are looking into the merits of the Narrow Gauge Roads:

TORONTO, December 30, 1871.

I have carefully read your articles under this heading in the *Review* of the 23d of December, in which you give some account of the narrow gauge railways in Canada; and while in the main your description of these railways is correct, there are a few inaccuracies; such, for instance, as your statement that you went up the four mile grade at Caledon—which you have made a mistake about, for the track is not laid there as yet; and the sharp curves you speak of are at the crossing of the Humber Valley, where the grades for half the distance are equally severe, but not for more than a mile upon the sharp curves.

There appears, however, to me, in your article, some anomalies which, I think, call for an explanation, and it is for this reason that I venture to intrude myself upon your space.

In the early part of it you say that you consider a narrow gauge desirable in certain cases: (1) Where the construction of a wide gauge is impossible in an engineering point of view; (2) when the resources of the country, present and prospective, do not financially warrant the wider gauge; (3) in the case of short lines which can never become links in a through line; and later on in the article you deprecate the introduction of a narrow gauge anywhere between the Alleghenies and Rocky Mountains. Surely, Messrs. Editors, one or other of your three conditions is to be met with in this wide range of territory. You appear to me, from your reference to mountainous regions, to consider that conditions Nos. 2 and 3 can not exist apart from condition No. 1.

I am sorry that in summing up the advantages and disadvantages of narrow gauge roads, you make no remarks upon the subject which, in nearly every instance, has led to their adoption; I mean economy of construction, resulting from the flexibility of the gauge, in allowing the road to be made so as to follow very closely the natural contour of the country. You say, in point of fact, that you think it unnecessary to point out any of these advantages; and you mete out but small praise to the narrow gauge system. Facts, Messrs. Editors, upon this as well as other subjects, are better than all the theories in the world. A railway similar in character of construction, through a similar country, but of a gauge of 5 feet 6 inches instead of 3 feet 6 inches, has just been contracted for, at cash prices, in this country, at a price which gives a mileage rate of \$7,000 for the same work which I have executed on the Toronto, Grey and Bruce Railway for \$3,800 per mile. These items are grading, bridging fencing and ties—in fact, completing everything required for preparing the road-bed ready for laying the track.

As regards working economy of broad and narrow gauge roads, your arguments result in favor of the former; but here facts come to the rescue. I only know of one instance where the two systems have been tried side by side under similar conditions of management, climate, etc. I mean in Norway, where railways of 4 feet 8½ gauge and of 3 feet 6 inches gauge have been constructed by the same Engineer, and have both been operated by Government under the same Manager. I have before me a Government return of the result of both, cost of construction and working economy of the two systems, and the results are as follows:

	4 ft. 8½ in.	3 ft. 6 in.
Cost of construction, per mile,.....	\$ 26,343	\$17,143
Receipts, per mile,.....	27,690	27,325
Maintenance, per mile,.....	7,173	6,566
Locomotive expenses, per mile,.....	9,425	5,769
Do. per locomotive, mile,.....	5.22	4.50

While the actual total of the working expenses has been 3 per cent. less on the 3 feet 6 inches gauge than upon the 4 feet 8½ inches gauge. These are taken from an average of six years working; and from personal knowledge I can state that the conditions of working and nature of traffic are sufficiently assimilated to render the comparison a valuable one. I am not a narrow gauge enthusiast; but what I do believe, and what is gradually becoming the belief of many others, is, that there are numerous districts which have lain fallow for many years, and which are likely to remain so for a still longer period, unless they are developed by some such inexpensive and valuable pioneer as a narrow gauge road. I believe the day is not far distant, when thousands of miles of these roads will extend over the length and breadth of the vast continent, lending their aid in the mighty work of civilization and progress.

I am, sirs, your obedient servant,

ERASMO WRAGGE,

Chief Engineer T. G. & B. and T. & N. R.

INJUNCTION AGAINST THE O. & M. RAILROAD.—The Newark (N. J.) *Daily Advertiser* of the 24th ult. announces that the Erie Railway has sued out an injunction against the contemplated narrowing of the Ohio & Mississippi Railroad to the Ohio gauge of four feet nine inches. The grounds on which the injunction was granted, are that in 1868 the Erie road purchased the new narrow gauge rolling stock that had been built for the Ohio & Mississippi road, paying therefor \$300,000, and did other matters for the said road, in consideration of which the latter agreed to give up the contemplated change, and covenanted to enter into a close alliance with the Erie road. There bids fair to be a long fight over the matter.

—The Chicago & Alton Railroad earnings the first two weeks in January were \$165,477.33—an increase of \$33,060.82 over corresponding period in 1870.

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CHAS. S. HELLER.

PHILADELPHIA, August 1, 1870.

29-0-70, 27

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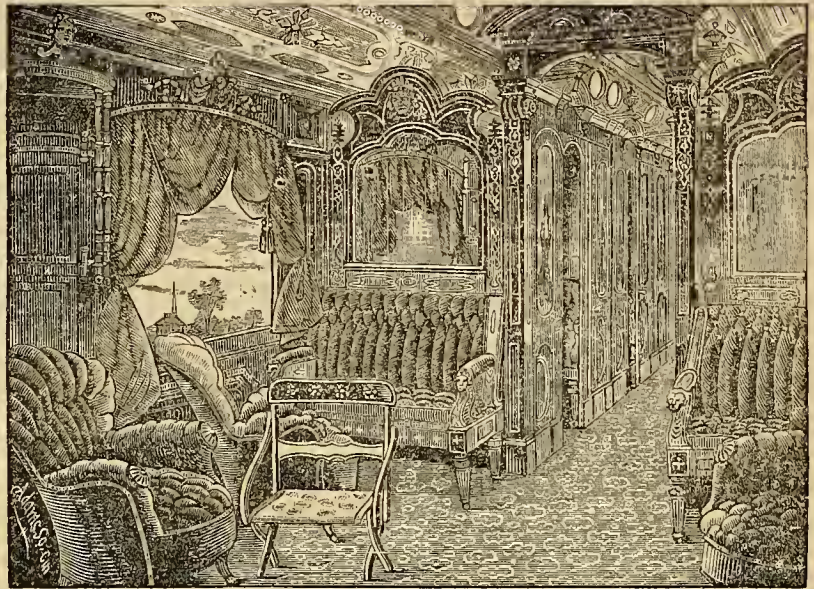
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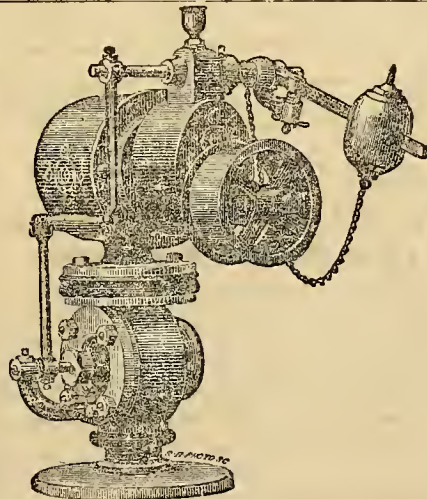
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On and after June 13, trains will run as follows:

No. 2 EXPRESS leaves Cincinnati 7.20 A. M. Daily (except Sundays). Stops regularly at Walton, Elliston, Sparta, Liberty, Worthville, Campbellsburg, Lagrange, Pewee Valley, Anchorage; when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Glencoe, Eagle, Carrollton, Sulphur, Pendleton; arrives at Louisville 12.05 P. M.

No. 6 SOUTHERN FAST LINE leaves Cincinnati at 1.20 P. M. Daily (except Sundays). Stops only at Walton, Worthville, and Lagrange; arrives at Louisville 5.20 P. M.

No. 8 MAIL leaves Cincinnati 5.00 P. M. Daily (except Sunday). Stops regularly at Walton, Elliston, Glencoe, Sparta, Liberty, Worthville, Campbellsburg, Sulphur, Lagrange, Pewee Valley, Anchorage, and when flagged, at South Covington, Maurice, Independence, Bank Lick, Verona, Zion, Eagle, Carrollton, Pendleton; arrives at Louisville 10.00 P. M.

No. 10 NIGHT EXPRESS leaves Cincinnati at 11.15 P. M. Daily (except Saturdays). Stops regularly at Worthville, Lagrange, and when flagged, at Walton, Verona, Elliston, Glencoe, Sparta, Liberty, Eagle, Campbellsburg, Sulphur, Pendleton, Pewee Valley, Anchorage; arrives at Louisville at 5.00 A. M.

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Toledo, Detroit & Canada	7:15 A. M.	10:25 P. M.
do do do	7:15 P. M.	7:00 A. M.
Lima Fort Wayne & Chicago	7:15 A. M.	10:25 P. M.
do do do	2:30 P. M.	5:40 P. M.
do do do	6:30 P. M.	7:30 A. M.
Sandusky, Cleveland & Buffalo	7:15 A. M.	5:40 P. M.
Springfield Accommodation	2:30 P. M.	10:20 A. M.
Sandusky, Cleveland & Buffalo	6:30 P. M.	10:20 A. M.
Muncie & Indianapolis	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	1:20 P. M.
Hamilton, Eaton & Richmond	7:15 A. M.	10:25 P. M.
do do do	5:40 P. M.	10:20 A. M.
Hamilton Accommodation	9:30 A. M.	8:45 A. M.
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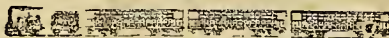
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